The Iron A

A Review of the Hardware, Iron and Metal Trades.

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The Van Rennes Hot Air Engine.

Among the hot-air engines which have been before the public in Europe for some time is one invented by M. Van Rennes, of Utrecht, Holland, who has quite recently Utrecht, Holland, who has quite recently considerably modified its construction. It is this latest style which we present in the accompanying engraving. A and A¹ are two cylinders, the lower part of which, the fire-box, is placed over a fire-place. While the fire-box is made of cast iron, the upper portion is constructed of boiler iron. The pistons C C¹ are open above, and are upper portion is constructed of boiler iron. The pistons C C¹ are open above, and are provided with a leather or other packing. They are guided by m m¹, and each of them has a stuffing box, through which the rods of movable plungers D D¹ pass. The lower portion of these plungers has the shape of a bell. The upper part of the cylinder is surrounded by a water jacket, B B¹. The plungers D D¹ are connected with the walking beam I, while the two pistons C and C¹ are attached to the walking beams II and II¹, the former of which is longer than the latter. By means of the connecting rod P and crank, its right arm turns the fly-wheel J, while the other arm of II drives the air pump M. The walking beam I is just as long as while the other arm of II drives the air pump M. The walking beam I is just as long as II, and by means of the connecting rod P' and crank G, gives the fly-wheel a rotary motion, while a pump is attached to the other arm. When the air in the fire-boxes is heated, the plunger D commences to ascend, driving the air above it into the space between it and the fire-box, where it expands considerably and causes the piston C to move upward. By means of the walking beams, the piston C' and plunger D' are forced into their lowest position and commence to reascend. As the upper portions of the cylinder are water-jacketed, all the air which they contain will be cooled, and any considerable counter-pressure upon the descending piston will be avoided.

At b b' the cylinders have valves opening

descending piston will be avoided. At b b^{\dagger} the cylinders have valves opening outward. They are in communication by pipes c c^{\dagger} with a chamber L containing compressed air. As soon as the air pressure is less in the cylinder A A^{\dagger} than in the chamber L containing compression. is less in the cylinder A A. than in the cham-ber L, air will pass from the latter to the former. The pipes c c! have valves which are used in the following manner in order to start the engins: One of them is opened, so that communication between one cylinder and the chamber L is established. As soon as the fly-wheel has made half a revolution the valve on the second pipe is opened, and then the engine will be in operation. The running of the engine is regulated in the following way: The two cylinders are con-nected by a pipe, K, and both may be placed in communication with one another or be cut off from one another by means of a valve a. When the latter is closed the envalve a. When the latter is closed the ea-gine is developing its full power, but, if opened, it will gradually come to a stop, so that the position of the valve can command any speed desired.

The Estimation of Combined Carbon in Cast Iron and Steel.

In a paper read before the Engineers In a paper read before the Engineers' Club, of Philadelphia, and published in the proceedings of that society, Mr. David Townsend describes a modification of the well-known Eggertz color test, first introduced by Prof. Leeds, of the Stevens Institute of Technology. It is based on the well-known fact, announced by Eggertz, that iron or steel containing combined carbon, when dissolved in pure nitric acid, gave a brown color which varied in depth directly in proportion to the amount of such carbon

The apparatus consists of a stand or rack arranged for holding ten comparison tubes, each of which, when filled to the same depth, hold 100 c. c. of liquid. Directly underneath these tubes is a platform on which slides a carriage holding a glass cell or wedge 10 inches long and 2 inches wide. This wedge contains the comparison liquid, properly standardized, and gives the different gradations of color according to the depth of the liquid. Under each tube, in the platform is a rectangular slot, allowing platform, is a rectangular slot, allowing light, which is reflected from the top mirror, to pass down through the colored liquid in the tubes and be received for comparison

with 15 c. c. pure nitric acid having a specific gravity of 1.2. The tube is placed in a wooden clamp, together with a thermometer, and lowered into a dish of water kept constantly at 80° C. by means of a properly regulated gas jet. In from 30 to 50 minutes the steel will be dissolved, when any residue which

the percentage of carbon is read eff at once. If the color should be too dark to come within the scale limits for I gram of material, 5 grams are taken and the reading multiplied by two; similarly should the color be too light, 2 grams are taken and the result divided by two.

Certain precautions have to be adopted to insure accuracy in the results.

insure accuracy in the results. The upper reflecting mirror should receive its light from some white surface or body having a from some white surface or body having a uniform color, otherwise it will transmit the inequalities of tint which it receives and thus cause error. The depth of solution in the comparison tubes should be exactly the same for similar quantities of liquid, for the color will vary directly as its depth and not with special tint. The comparison liquid in the wedge remains permed for a long while the wedge remains normal for a long while if protected from the light when not in use, but it is safest to restandardize it at least once a month. What is claimed especially for the process is the great accuracy and if protected from the light when not in use, but it is safest to restandardize it at least once a month. What is claimed especially for the process is the great accuracy and speed with which results may be obtained; leave to be in good working condition. Chief Shoch recommends an appropriation of \$150,000 for the purchase of heavier tools required at the several navy yards in working the keavy boiler plates now in use.

another point in the scale, which is exactly one-half the preceding, is obtained.

For an unknown steel the process is obviously the same as described, with the exception that when the final comparison is made with the wedge and the scale applied, the percentage of carbon is read eff at one. If the color should be too dark to come within the scale limits for I gram of material, 5 grams are taken and the reading multiplied by two; similarly should the color be too light, 2 grams are taken and the result the New York and Mohican and repairing divided by two.

fully recommend the building of two armored ships of a displacement of 5500 tons each, and of three unarmored gunboats, having each a displacement of 700 tons. The estimated cost of these vessels, under this bureau, is \$2,900,000: but an appropriation asked for the first year." The appropriations asked for this bureau are summed up as follows:

For preservation and repair of vessels, purchase of tools, materials, &c.: Finishing the New York and Mohican and repairing the Dictator, \$2,500,000; for building three class.

For preservation and repair of vessels, purchase of tools, materials, &c.: Finishing the New York and Mohican and repairing the Dictator, \$2,500,000; for building three classed. Of the torpedo station at Newport, the save has gained fresh import, the concluding passages of the curacy. The progress of gun construction that send to conclusions such as we have never before curacy. The progress of gun construction that send the navies of the entire armament of the navies of the entire the Dictator, \$2,500,000; for building three gunboats and beginning work on two armored cruising ships, \$1,500,000; for finishing and repairing the monitors Terror, Puritan, Amphitrite, Monadnock and Mian tonomah, \$3,122,836; total appropriations asked for, \$7,122,836.
Chief Shoch, of the Bureau of Steam En-

for the fiscal year ending June 30, as \$800, 000, and the total amount expended, \$794, 013.38. The departments under cognizance of this bureau at the several navy yards are

He recommends the use of the larger class of machine guns as of great value against the attacks of torpedo boats. During the year 30 new Gatling guns have been purchased. Of the torpedo station at Newport, R. I., Com. Jeffers says: "It has been engaged in experiment with explosives to determine the amount necessary to destroy various obstacles, and in general torpedo work. Several aggressive torpedos which work. Several aggressive torpedoes which promise well have been presented, and trials will be made to ascertain their utility. The usual class has been graduated, and there is now a large body of officers well instructed

in the use of torpedoes in naval warfare."
The report of R. L. Law, Chief of the Bureau of Yards and Docks, shows that the

In the concluding passages of his annual report, Secretary Thompson calls attention to the special relations between the navy and the commerce of the country. The subject, he says, has gained fresh importance by the constantly increasing surplus of agricultural and manufacturing products now help says by sea to all parts of the now being sent by sea to all parts of the world. To this immense commerce the navy is a necessary ally, and must at all times be prepared to furnish it protection.

It is impossible to do this effectually unless

a sufficient number of the right kind of vessels are constructed—not for cruisers merely, but for all the purposes of war when the emergency shall require it. The number of vessels should be increased. Good policy, in the Secretary's opinion, requires the na-tional government to employ all its legiti-mate powers to increase the strength of the mercantile marine. Continuing this ar-

gument, he says :

gument, he says:

"It is entirely competent to arrange with private shipbuilders with reference to the extension of our postal service upon the ocean, and to require that the vessels used for that purpose shall be so constructed that in the event of war they may be employed immediately for war purposes. England owes her present naval superiority to this policy, and it serves no valuable purpose to contrast our condition with hers unless we shall profit by her example. So long as her merchant vessels, built under her protection and patronage, are allowed to draw annually from our wealth about \$100,000,000 as compensation for freighting our commerce, just so long will our inferiorour commerce, just so long will our inferior-ity exist. Whenever our own commerce shall be carried on in vessels owned and built by our own people, capable of being turned into ships of war when necessary, then we shall reach the point of equality with her, and be prepared, when the neces-sity shall arise, to test with her the question superiority upon the sea. Before the British vessels from the ocean, and since then have contented ourselves with uttering complaints against England for her agency in destroying ours while the war was in progress. The time for active and energetic measures has now arrived, and every future year of neglect will add to our infe-

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THE VAN RENNES HOT AIR ENGINE.

any one not a chemist can make the com-

Our Navy Department.

bureaus of the Navy Department for the bureaus of the Navy Department for the fiscal year ending June 30 were given to the public to day. Chief Easby, of the Bureau of Construction and Repairs, reports the amount appropriated for the fiscal year 1879-80 as \$1.500,000, and the amount expended \$1.400,000. The report gives in department of the first year for their machinery, the total amount being \$1,900,000. yards in the construction and repair of with the light transmitted through the wedge into the bottom mirror.

To conduct the operation I gram of steel, containing a known amount of carbon (say 4 per cent.), is put in a tube and treated to the construction and repair of steamers, 29; sailing ships, 4; monitors, 8; torpedo boats, 2; total, 43. In ordinary—steamers, 18; sailing vessels, 8; monitors, 7. Receiving ships—steamers, 3; sailing 7. Receiving snps—steamers, 3; sailing ships, 3; monitor, I. Store ships—steamer, I; sailing ships, 3. On the stocks—steamers, 5; sailing ship, I; monitors, 4; ironclads, 3. Repairing—steamers, 9. At the Naval Academy—sailing ships, 3; monitor, I. Public Marine School—sailing ship, I. Tugs of all kinds at yards and stations, 25. may be left must be treated with 5 c. c. of fresh acid, and then added to the main portion. The liquid is now passed through a small asbestos filter, which has been previously purified, into one of the comparison that the comparison of the foregoing list of vessels will show the necessity of an increase in the number of efficient vessels for the navy. tubes, and after being diluted to 100 c. c. is placed in the rack. The wedge is now filled with a solution of caramel, diluted with wathe carriage the two colors are brought to exactly the same shade by moving the wedge in or out and making the comparison on the bottom mirror. This gives one point in a armored rams, furnished by the naval constructions are brought to the first importance. This addition to our small navy would be of great advantage. We have now in the bureau a number of plans of unarmed cruisers and of iron-armored rams, furnished by the naval constructions are constructed with the different construction.

The annual reports of the chiefs of bureaus of the Navy Department for the fiscal year ending June 30 were given to the Chief Easby, of the Bureau phitrite, Terror, and Monadnock; and if He also recommends that an appropriation of \$1,165,000 be made for the completion respective yards and stations: machinery, the total amount being \$1,000,000. The report states that 63 vacancies now exist in the grade of Assistant Engineer neer, but it is expected that the graduates of the Naval Academy will eventually bring the number up to the standard required by law. The report speaks in complimentary terms of the Cadet Engineers now in service in naval vessels, and suggests that the sys-tem now in successful operation for the education of American seamen be expanded to meet the wants of the engineer department in same direction. Chief Shoch renews his recommendation for the pensioning of disabled mechanics, and gives the following summary of estimates for the ensuing year Regular appropriation \$1,683,000
For heavy machinery 150,000
Finishing machinery of four monitors 1,165,000
Machinery for proposed two new ships 1,000,000

Total......\$4,000,000 Commodore Jeffers, Chief of the Bureau of bottom mirror. This gives one point in a paper scale cut to the side of the wedge, which represents 4 per cent. of carbon; then by pouring out one-half the liquid and again by pouring up with water to the 100 c. c. mark,

quested to pass an act authorizing the sale of stores and materials, which cost \$326,863 (war prices), but for which there seems no present or prospective need, the proceeds to be used in the purchase of new material.

Portsmouth, N. H	
Boston	76,883
New York	
League Island, Pa	85,000
Washington, D. C	
Norfolk	
Mare Island, Cal	
Naval Asylum, Phil	. 59,813
The following are all the estimate	s for the
fiscal year submitted to the secretar	
Support of bureaus, yards and docks	\$13,360.00
Jeneral maintenance	450,000,00
Contingent expenses	30,000.00
Support of Naval Asylum	59,813.00
Repairs and preservation	385,000.00
mprovements at navy yards	549,321.05
Civil establishment	43,018.25
m-1.1	
Total\$1	
The report is accompanied by an e	laborate

The report of Gen. Walker, the Superintendent of the Tenth Federal Census, gives a very gratifying statement of the work being done in the collection of statistics of manufacturing. In all, 365 special agents have been employed in 276 cities and towns, Commodore Jeffers, Chief of the Bureau of Ordnance, submits estimates for the fiscal year 1831-82, aggregating \$306,361.25. He says our first and most pressing want is guns of the latest and most approved system. At the largest places, where the investing the latest and most approved system. At the largest places, where the investing is hoped, will be finished this month. The experience of ten years since, the increased force authorized, and the improvement in the says our first and most approved system. At the latest and most approved system. At the latest and most approved system. At the latest and most approved system is a made sufficiently solved. Some very mild basic steel has been made sufficiently solved. Some very mild basic steel has been made sufficiently solved. Some very mild basic steel has been made sufficiently solved.

Subscriptions for M. de Lesseps' Canal.

It was announced a few days ago by Drexel, Morgan & Co., J. and W. Seligman & Co., and Winslow, Lanier & Co., that, under the authority of the council of administration of "The Universal Company" for the construction of an interoceanic canal through the Isthmus of Panama, they had been appointed a special American committee to receive subscriptions in America to tee to receive subscriptions in America to M. de Lesseps' project. The books were opened in the offices of these firms on the 7th inst. and will remain open until the 7th. According to the prospectus, the "Panama Canal Company" will be organized with a capital of 300,000,000 francs, made up of 600,000 shares of 500 francs each. All but 600,000 shares of 500 francs each. All but 10,000 shares, which are reserved for the original grantees, "in consideration for exa brown color which varied in depth directly in proportion to the amount of such carbon also the simplicity of the apparatus, by which | He also recommends that Congress be re- provement in appearance in the last year, will be offered for sale. M. de Lesseps is to and also that the health of the residents and employees has been greatly improved. The amount appropriated for repairs and proin the prospectus were not obtainable from the members of the American com-mittee. Mr. Jesse Seligman said that the American committee and other bankers, including Morton, Bliss & Co., John A. Stu art and Heidelberg, Ickelheimer & Co., propose to take shares in the company, and that applications for shares have been constantly coming in from bankers in other cities as well as in New York. The pros-pects were that all the shares intended for America would be subscribed for on the three days named in the prospectus. Bankers in all the principal cities would receive orders and send the returns to the special American committee. Mr. Seligman added American committee. Arr. Sengman added that in Paris a premium of 20 francs was offered in the applications for shares, and that he could not say at present how many shares will be allotted to this market.

> The Welding Qualities of Mild Steel. The manufacture of mild steel is not yet sufficiently well understood for it to displace the higher qualities of wrought iron, inasmuch as it will not weld, and the causes have not yet been ascertained why some bars of mild steel will weld and some will bars of mild steel will weld and some will not. Till more light is thrown on this subject, and till all bars put into an ordinary blacksmith's hands will weld with certainty, says Mr. E. Windsor Richards, so long will good wrought iron hold its own; "but I have no doubt in my own mind that not many years will mass away before this problem."

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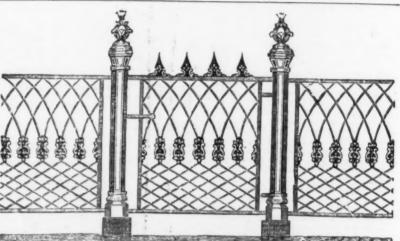
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There are few things more fascinating There are few things more tascinating than the ringing of a large bell. Whether this arises from the propensity of human beings to make a noise and a great commotion, or from the inherent pleasure of producing, through unseen means, a pleasant result, we do not know. When one stands in the lower room of a tower with a great rose. in the lower room of a tower, with a great rope now coiling up at his feet and then by some unseen power suddenly rushing away into the darkness above, there is a very peculiar sensation not to be met elsewhere. At just the right moment, known only by instinct and long practice, the rope is seized, a vigorous pull given, and then back it comes again, coiling down upon the floor at the feet. In another moment the rope must be seized and held fast, and the ringer knows that the great mass of metal above is standing bottom side up, ready to swing downward with a rush, and send its ringing voice out upon the air again. Let a novice attempt the same seemingly easy and simple task, and he will find himself one moment tangled in the coils, and the next dragged half-way up to the ceiling above. In order that a bell may be rung properly

and easily, with no annoyance to the ringer and with satisfaction to the public, a great many little details must receive attention. Formerly, the wheel, the yoke and the A frames upon which the bell was swuag, were all the work of the carpenter, and upon his skill entirely depended the working of the bell. To a great extent, the tone was A frame's upon which the bell was awung, were all the work of the carpenter, and upon his skill entirely depended the working of the bell. To a great extent, the tone was influenced by the methods he employed. At the diversity in the sounds produced. Signal bells and bells used for tolling the present day, the carpenter has little to do besides attending to the floor beams and putting the bell into position. The A-frames, the combings of the bell hatch, the yoke and the wheel are all prepared by the manufacture. the wheel, are all prepared by the manufac-turer, and frequently put together before they leave the factory. It is, therefore, only necessary for him to understand some of the essential features necessary in bellhanging to be able to do a perfectly satisfactory job. If the bell is large and heavy, the tendency is to set the yoke so that the pintles or gudgeons are very near the middle of the bell from top to bottom. This makes an easy ringing bell, but the stroke of the clapper is likely to be light and the sound comparatively weak. The yokes now sent out with large bells are made ad-justable, so that the bell may be hung in any position relative to the gudgeons that may be desired. Generally speaking, the greater power will be got the lower the bell is hung. If this unduly increases the difficulty to ringing, a counterweight can sometimes be

matter of no little importance. Not only does it effect the distribution of the sound, but a more important matter, the direction or lead of the bell rope. There is only one satisfactory way of leading a rope from the bell to the room from which the bell is to be rung, and that is to take it vertically down from the rim of the wheel without a bend. We have rung bells where the rope was carried off at an angle over pulleys, in order to bring it into some more convenient place. The difficulty of "setting" the bell is a constant annoyance which follows imperfect The smallest rope is amply strong enough seems to stand easily in the front. Not for its work, since the amount of strain which comes upon it is only equal to one man's weight. Our own preference in a matter is a rope of a size convenient to be.

In the great chime of bells in Worcester Cathedral, Frederick them are replaced to many the form of the strain only are her yokes lighter than those used abroad, but very strong, more convenient and neater.

In the great chime of bells in Worcester Cathedral, Frederick them are replaced to many the strong than the first handing bells, American to handing bells, Amer matter is a rope of a size convenient to be grasped by the hand.

The raceway ought to be free and clear,

the Russians have the largest bells, and the Belgians and the Dutch the sweetest. The renown of the bells of Holland and Belrium is world wide, and though they are not glum is world wide, and though they are not always the largest in size, the accuracy of the tuning and the sweetness of their tone make them easily first. The skill of the Netherlanders is not, however, confined simply to the manufacture of single bells. They are chiefly noted for their magnificent chimes. At Bruges there is a chime of 43 bells, some of them having as many as six hammers; there are 190 in all. The machinery for working this chime of bells was constructed as far back as 1748. Many of these Dutch and Belgian chimes are rung automatically by machinery, there being a large barrel like that of a hand organ, which catches the ends of the levers to which the hammers are attached, raising to which the hammers are attached, raising them and allowing them to fall again upon the bell. The motive power is given by a weight which, in some cases, is as heavy as 300 lbs. At Ghent the weight has to be wound up twice a day. The drum is no less than 6 feet in diameter. It is, we believe, very old. Some of these bells strike for the hour and others for the half hour, and at each quarter a tune is played. Hand clappers and a keyboard are always provided with these chimes, in order to enable them to be played by hand as well as by machinery. chinery

A whole chapter might be written on the oy hand in making the stroke. The tolling hammer, introduced of late years, is an immense improvement upon the plan of tolling the bell by the means of the ordinary rope and wheel. It is almost impossible to produce, by swinging a large bell, a good, strong and clear single note. Even with a spring, the weight of the hammer will cause it to rest on the sound boy of the bell and it to rest on the sound bow of the hell, and produce a disagreeable grating noise, which is very plainly heard in the immediate vicinity of the bell, and sometimes at even a considerable distance. With a tolling hammer, however, a clear, loud stroke can be made, without any of the disagreeable features. without any of the disagreeable features produced by the prolonged contact of hammer and sound bow. It is the practice of some people never to set a bell, but simply to bang it backward and forward and get a good stroke at every swing. This produces an old-fashioned fire-alarm stroke, which is ringing, a counterweight can sometimes be attached above the bell to advantage. We have seen very large and heavy bells hung so that the top of the bell was only a few inches above the gudgeors, and yet, with out using excessively large wheels, these bells rang very easily, because a weight in the cases we mention—a heavy block of stone—was fastened to the upper side of the yoke, thus counterbalancing the weight of the bell. Rotary yokes at the present time are much in vogue, and we think deservedly so, since by their use the clapper never strikes continuously in the same place.

The location of the bell in the tower is a matter of no little importance. Not only hung from beams and the clapper only swung. This was so enormous that it required the force of from 30 to 40 men attached to the ropes to strike it. The heavy booming of such bells is described as being very grand and solemn.

very grand and solemn.

The Japanese and Chinese make a bell of radically different shape from any other nations. It is cylindrical, or nearly so, the flare at the bottom being in some cases scarcely perceptible. Like those of the Russians, these bells are not swung; the sound is produced by a wooden clapper, which is not attached to the bell. When it is necessary to sound the bell, a man takes a big wooden club and pounds upon the sound-bow. Posstant annoyance which follows imperfect adjustments of the pulleys. The matter of club and pounds upon the sound-bow. Posarope is a very important one; it should not be too small nor too large. In one case it rung in this manner produces as pleasing a is inconvenient to grasp, and in the other case its weight and tiffness make it awkward to handle. In fact, a rope should be dependent rather upon the convenience of the man than the size of the bell or wheel. The smallest rope is amply strong enough seems to stand easily in the front. Not

matter is a rope of a size convenient to be grasped by the hand.

The raceway ought to be free and clear, so that there is no obstruction and the rope does not touch the sides at any time. Guide pulleys at the top, accurately centered over those below, are sufficient, and if the work is done as it should be, the only sound heard at the tell is virging; it the health is virging; it the health is virging; it to health itself.

those below, are sufficient, and if the work is done as it should be, the caly sound heard when the bell is ringing is the bell itself. The rope should be dumb. In many churches, however, the stroke of the bell rope like a small earthquake, which, to a stranger, is both annoying and startling.

To most people a bell is a bell. Whether its sound is pleasing or otherwise never seems to enter their heads. There is, however, a vast difference in bells—even those of the same weight and tone vary among themselves. A sweet-toned bell is exceedingly desirable. Its ringing makes music instead of noise. In buying bells, it is too commonly the practice to raise the money and then send to the foundry and order as big a bell as the money will buy. A much better plan would be to order a sweet toned bell always supposing, of course, that it is impossible to go and consult with a bell founder in regard to the matter.

Of late years chimes of bells have become more common in this country than formerly. This is a move in the right direction, and when well handled a chime is always a source of delight to all the neighborhood. We wish, however, to enter a protest against the use of "peals" of three or four bells. When people think they cannot afford a chime, they try to make a peal take its place. Of all exasperating, distracting and utterly abominable noises that human beings make with machinery, with fire-crackers, guns, or other instruments, the bell is the order of the stations was 706. In addition the life saving row within the last ten years, and yot they are all hung in a style that went out of fashion in this country years ago. Except in our oldest churches, it would be difficult to find apparatus more primitive. The heaviest of these bells weight to small hung in a style that went out of fashion in this country years ago. Except in our oldest churches, it would be difficult to find all the neighborde.

S. J. Kimball, general superintendent of the Life-Saving Service.

S. J. Kimball, general superintendent of the service i utterly abominable noises that human beings make with machinery, with fire-crackers, guns, or other instruments, the bell is the worst when used in a peal. Our opinion is that if a town or church cannot buy a chime, the peal is the poorest substitute. In this we speak from experience and feelingly, and, as a matter of private opinion, are inclined to think that the use of peals of bells should be made a crime.

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340, and the value of their cargoes was \$1,195,368, making the total value of property in peril \$3,811,703, which is nearly \$1,000,000 more than was involved during the year preceding. Of this amount, \$2,619,807 was saved, and \$1,191,901 lost, the loss being \$250,899 less, and the saved \$1,174,721 greater than in the previous year. The number of casualties upon the Atlantic

coast within the scope of the service was 162, one less than in the previous year, while on the lakes the number is more than doubled, being 136, against 53 in the pre-vious year. In these 136 disasters, only a single life was lost. The total loss of life within the scope of the service is the smallest ever reached since its general extension, the lowest previous number being 22. Many of the rescues on both the lakes and Atlantic coast were of the most venturesome and skillful character, costing the greatest hardships and labor, and in one instance the loss of one of the most gallant of the crews—that of one of the most gallant of the crews—that of the Point aux Barquas Station—the members of which had saved nearly 100 lives during the season. The report also does honor to the remarkable exploits of the New Jersey crews which were engaged in the rescues of the great storm of February 3.

The following table gives a summary of the results since the introduction of the present system in 1871.

present system in 1871 : present system in 1571:
Total number of disasters.
Total value of vessels
Total value of cargoes
Total value of property saved.
Total value of property lost.
Total number of persons on vessels.
Total number of persons saved.
Total number of lives lost.
Total number of dives lost.
Total number of days' shelter afforded.
Of the 271 given shove as los

Of the 371 given above as lost, 183 occurred at the disasters of the Huron and the Metropolis, which, according to the re-port, were not chargeable to the service. Six new stations have been established dur-Six new stations have been established dur-ing the year upon the Gulf coast and are now in operation, constituting a new dis-trict called the Eighth. The general super-intendent renews his reccommendations of the preceding year for additional stations.
The superintendent also urgently recommends a moderate increase of appropriations to enable him to employ an additional man at each station throughout the active season, instead of for a short time, as is now done, to provide hoses for hauling life-saving apparatus to scenes of wreck, and to increase the means for insuring the rapid landing of persons from vessels. He sets forth that the service upon the lakes, which this report shows has reached the highest state of efficiency, recently has become in alarming danger of sudden paralysis on acalarming danger of sudden paralysis on ac-count of inadequate compensation, the surf-men being rapidly withdrawn from the sta-tions by the higher wages offered by private enterprises. The same danger is also be-ginning to appear on the Atlantic coast. To avert this calamity he asks that the regu-lation of wages be left to the discretion of the general superintendent within the limits of the appropriation for the purpose. The of the appropriation for the purpose. The pensioning of widows and orphans of those who sacrifice their lives in the service is also who sacrifice their lives in the service is also urgently advocated and emphasized by reference to the fate of two of the district superintendents and the recent loss of life-saving crews. The increase of the pay of the district superintendents is likewise urged. The high degree of afficiency which the service has attained is credited to the fact that it for extincts discovered from fact that it is entirely disconnected from politics, its officers and men being appointed only with reference to their qualification. It is predicted that the service will rapidly decline whenever professional fitness shall cease to be the sole criterion. To secure this condition of continued success, he recommends that it be made the subject of formal enactment by Congress. The report states that the successes of recent years have brought the merits of the service into more prominent relief both at home and more prominent relief both at nome and abroad, the concession of its superiority now being everywhere made. Applications, too, have been received for aid in extending the American system to foreign countries. This pre-eminence, the general superintendent declares, cannot be maintained unless a greater liberality is shown in making appropriation for the support of the ing appropriations for the support of the service, and unless the foregoing recom-

Eastlake Principles and Eastlake Fashion.

nendations are adopted.

Fashion in furniture is at last changing in the direction of the more beautiful lines of the Italian styles, and rebelling against what has been designated Queen Anne and Eastlake, but which should have been called the ''shipcarpenter "style. At this every lover of the beautiful will rejoice, for the horrible things that have been perpetrated under the name of Eastlake have been bad enough to cause a rebellion n the heart of every artist.

a rebellion in the heart of every artist.

Eastlake's designs have been used for the foundation of a so-called style, yet it was furthest from his intention, when writing his work on household taste, to have anything to do with a fashon or a style. He designed various articles with little or no ornamentation, and his aim in those designs was mainly to illustrate the principles involved. The legion of people who have made or manufactured Eastlake furniture have made this into a fashion which, as we have said, properly deserves to be called the ship-carpenter style. It is rough, square, ugly and ungraceful, and the most of it lacks in every detail those things for which Eastlake pleaded with all his eloquence.

The aim and burden of his writings was in

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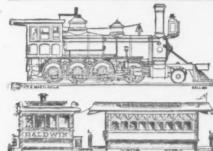
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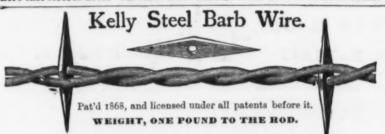
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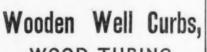
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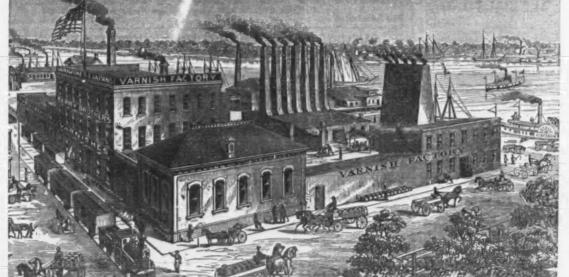
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a single piece, and then with a beading plane make beads diagonally across these panels to imitate narrow boards. A case or a book rack put together with dowels and pins is strong, can be easily taken down, and can also be kept tight, even when the wood shrinks. This construction is not pretty, and is really best suited for heavy work; yet we have seen book cases put up work; yet we have seen book cases put up to imitate this construction where the shelves were put in with screws, and the dowels and pins glued upon the outside of the end pieces. Such construction is utterly useless and wholly dishonest. Honest con-struction in wood is possible, however, even with the beautiful shapes toward which the Italian ravival is leading us. Currod brocks Italian revival is leading us. Curved brack-Italian revival is leading us. Curved brack-ets in a corner may be made so as to have the straight grain of the wood running through them from end to end, and yet pos-sess very graceful outlines. Curved legs can also, with a little care in designing, be given ample strength without cross-grained portions to give the observer a feeling of portions to give the observer a teering of uneasiness. Perforated woodwork such as is produced by the scroll-saw, if set in such a fashion as to be protected from violence and allowed to shrink without injuring it-self, is as permissible in honest construction self, is as permissible in honest construction as gilding or painting. The use of bent timber—which, if we remember correctly, is not mentioned by Eastlake—gives great freedom in design, while securing all the advantages of the straightest members. Many of the latest designs which we have seen, while as far in style from Eastlake's designs as can well be imagined, do not in any respect violate those principles of sound construction in wood which he laid down.

The Swiss architects of the olden time were famous for the beauty and the strength of their woodwork, and while they adhered carefully to such forms of construction as carefully to such forms of construction as would give them the greatest strength of the timber, they frequently introduced curves of surpassing beauty and made light and graceful structures. The designer who carefully studies the test works upon furniture and catinet work, will find that he can easily keep the principles in mind which they lay down and at the same time produce furnidown, and at the same time produce furni-ture which shall be light, beautiful, and, at the same time, strong and durable.

lands. State Engineer Hall has been examining the problem thoroughly, and quite recently Captain Eads has been called upon to give an opinion. In his report, recently submitted, he deals with the points at issue in a manner which is deserving of attention, as the application of his remarks is generally valuable. He says of the projects advanced for the improvement of the Sacramento

River:

It is very certain that, unless a proper plan of improvement be adopted, there will be still greater inundations, and more extensive areas of valuable lands will be covered with this detritus. Navigation must likewise become more difficult, and in time that of Suisun Bay and the Bay of San Francisco will be invasized.

Closs than a fourth. The increase is, however, still sufficient to pay a 4 per cent. dividend on the common stock. It is apparent already that the earnings this year will be the greatest ever known in the history of the company. The full statement follows:

Gross Operati'g Net carnings.

will be impaired.

No improvement is worth considering which will not result in permanent relief, unless it be consistent with certain well-known natural laws controlling the action of all sediment-bearing rivers. We have two grand divisions in the problems—force and resistance—and to one or the other of these belong all parts of our investigation.
The force expended by the river results from The force expended by the river results from the fall of its waters from a higher to a lower level. To estimate the amount of any moving force, three elements must be considered—first, matter; second, space; and, third, time. In this case we have, first, the volume of water in motion; second, the vertical hight from which it falls; and, third, the time during which it is falling. If either one of the two first-named elements be increased during any given unit of time, the force expended during that time will also be increased; that is to say, if the volume of discharge be increased, the force will be increased; or if the hight from which it de-

tion of the bed; second, the friction of the particles of water among themselves; third, the resistance to the direct flow of the water resulting from the bends and irregularities of the channel; and, fourth, the resistance of the gravity of the sedimentary matters in the water when suspended in it

or moved along its bed.

It is simply impossible to compel the current to do any additional work beyond that performed by it in a state of nature, unless the force expended be increased, or unless ome one of the resisting forces before named be proportionately lessened. There are but two ways of increasing the force of a river—first, by increasing its volume; second, by increasing the vertical space through which its volume descends in a given time. given time.

given time.

Nature gives to all sediment-bearing rivers the ability to increase their force when overtaxed by their burdens of sediment. This they do by depositing the excess in their beds, thereby raising them and increasing their surface slopes, or, as it is popularly called, their "fall per mile." An increase of this slope involves an increase of the vertical space through which the water falls, and this increases the force and creates a greater velocity of current. This deposition in the bed continues until a velocity is produced sufficient to transport the whole of the duced sufficient to transport the whole of the sediment to the sea, after which deposit ceases to occur in it. If the filling the bed quarter. of the stream in this manner be not sufficient to produce the necessary current, the waters expand over the adjacent lands and cover them with sediment, until they are of sufficient hight to sustain new channels of the

SHES

The Sacramento River and its tributaries have evidently been doing this kind of work for the last score of years. Near the mines, we learn from Mr. Hall's investigations, the Yuba now falls from an increased hight of 125 feet, and that the bed of the Sacramento at Feather River is 20 feet higher than it

By far the most importent element of resistance which provents the rapid flow of the waters of the valley, is the friction of the different channels through which they move. Some idea of the magnitude of this resistance may be inferred from the fact that nearly nino-tenths of the resistance of well-formed ships is the result of friction between their surfaces and the water. If between their surfaces and the water. If we can reduce this resistance in the river channels we cannot only facilitate the discharge of the floods, but we will have a corresponding amount of surplus force to excavate deeper ones in the rivers and to transport the sediment. Friction is not only increased by the widening and flattening of the channel, but also by its subdivision. If we divide the water flowing in one semicylindrical channel into two equal ones of half the size, we must increase the slope of balf the size, we must increase the slope of each of the smaller ones in the ratio of 12 to 17, to produce the same velocity.

As the immediate effect of a crevasse is to lower the hight of the flood in its vicinity

and below it, many persons imagine that natural or artificial outlets, by which a part of a river's flood volume is drawn off, tend to lesson the recurrence of destructive in-undations. This process would undoubtedly prove effective if the waters of the Sacramento were not charged with an immense quantity of sediment. To prevent this settling on the bottom a certain velocity of current must be maintained. Although the first effect of a crevasse or natural outlet is to lower the hight of the floods, the final and permanent one is to increase it in proportion to the magnitude of the outlet, because the slope of the river must be increased in proportion as the volume is diminished.

Earnings of the Pennsylvania Railroad Company.

the same time, strong and durable.

The Force and Resistance of Rivers.

A question which has been the subject of much scientific research, and upon the proper solution of which the working of valuable mineral property depends, is that of the disposal of the mining débris of the rivers of California. The huge masses of sand and gravel washed annually into these rivers by those operating the hydraulic gold mines of the State have brought severe injury to the agricultural interests of the low-lands. State Engineer Hall has been examare about the same as for October last, but are still the heaviest known. It will be noticed that the proportion of increase is almost exactly the same as for the previous month, and that the addition of the month's figures brings down all the ratios of gain except that of expenses, which is a trife greater. The ratio of increase in the gross has dropped to a little more than one-fifth, and in the net, for the first time this year, to less than a fourth. The increase is, however, still sufficient to pay a 4 per cent.

	Gross earnings.	Operati'g expenses.	
October, 1879 October, 1880	\$3.518,144 3,882,714	\$1,832,214 2,194,320	\$1,685,930 1,688,294
Increase Per cent	\$364,570 xo.4	\$362,106 19.8	\$2,464
Ten months, 1879. Ten months, 1880.	\$28,034,354	\$16,655,319	\$11,370,035
Increase Per cent	\$6,102,975	\$3,367,314	\$2,735,661

The Western lines reflect very much the same condition of affairs. They have earned a surplus over all liabilities for the month of moving force, three elements must be considered—first, matter; second, space; and, third, time. In this case we have, first, the volume of water in motion; second, the vertical hight from which it falls; and, third, the time during which it is falling. If either one of the two first-named elements be increased during any given unit of time, the force expended during that time will also be increased; that is to say, if the volume of discharge be increased, the force will be increased; or if the hight from which it descends be increased, the force will be likewise increased. This pain for the month of \$419,606, but that is apparently \$173,578 behind the corresponding month of last year. This can hardly be due to the falling off in the traffic, heavy as we know that it was last year, and it must be due to the very heavy expenses incurred in building new stations, renewing bridges and relaying tracks on the Pan-Handle and Fort Wayne roads. This gain for the month of \$419,606, but that is apparently \$173,578 behind the corresponding month of last year. This can hardly be due to the falling off in the traffic, heavy as we know that it was last year, and it must be due to the very last year, and it must be due to the very stations, renewing bridges and relaying tracks on the Pan-Handle and Fort Wayne roads. This gain for the year up to \$2,505,837, with the prospect that the total surplus for the year up to \$2,505,837, with the prospect that the total would be the greatest surplus ever known on the Western lines. It will be noticed also that the business of the last two months—though the heaviest ever done on the coarthough the heaviest ever done on the company's lines-has not in the least increased for the first eight months of the year.

> Indian Pocket Knives.—An English paper says: We have recently had sub-mitted to us for inspection a specimen of a pocket knife, made apparently of very goo teel, containing an extraordinary variety of implements, including a full-sized knife, fork and spoon. The article was sent us by an officer lately returned from Afghanistan, who purchased it at Wuzzerabad, in the Punjaub, where, we understand, there is considerable manufacture of cutlery. The workmanship is somewhat rude, but the workmanship is somewhat rude, but the knife is engraved, and not stamped, in its mountings, this adding considerably to the cost of production. The price of the article (retail) in India was 8/, and we learn from Sheffield that similar knives could not be made there for less than 25/ or 30/ cach, wholesale, or about 40/ retail. One entlery manufacturer, who says it is impossible to make a knife in England or anywhere else. make a knife in England or anywhere else at the cost named (8/), expressed his willing ness to at once take 1000 of them if he could obtain them. The matter is one of some interest to our manufacturers, as this etition appears to spring from an entirely new

> The Baltimore and Ohio Railread Com-pany have perfected their arrangements for a route to New York over the Bound Brook line, thus adding another to the trank lines between this city and the West.

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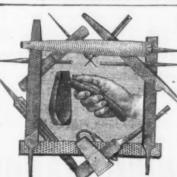
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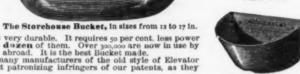


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The Mill Bucket, in sizes from 3% to 16 inches.

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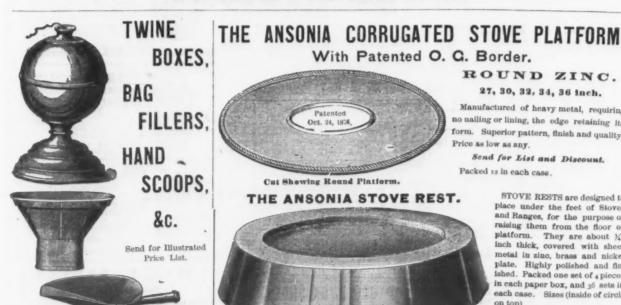


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Railroads as Highways.

The Chamber of Commerce, in August last, addressed to prominent men in various parts of the country a circular asking their opinions on some of the chief points involved in the problem of railroad transportation. A series of questions were asked, among which were these: "How can the prevailing discriminations against individuals and communities be prevented? Is it safe to allow railroad managers to follow their new theory of charging 'all the traffic will bear?' Ought not the companies to be supervised in the public interest, as banks and insurance campanies are, and for more pressing reasons? What do you think of companies and managers contributing large companies and managers contributing large sums of money to election expenses or to influence legislation? Is it right to water stock through any means by which fictitious bases of value are established? Is a law which limits passenger rates just, and if so should not the principle be extended to freight charges? and what do you think of charging \$4 per 100 pounds from New York to Salt Lake City, and only \$2.50 from New York to San Francisco?" The Special Committee on Railroad Transportation, consistmittee on Railroad Transportation, consisting of Charles S. Smith, Jackson S. Schultz, B. B. Sherman, F. B. Thurber, and C. C. Dodge, and by whom the circular was sent out, have received a large number of letters out, have received a large number of letters in reply to their questions, and yesterday furnished for publication the one printed below from the Hon. Jeremiah S. Black, which they regarded as "a most valuable contribution toward the solution of the railroad problem." Judge Black holds that railroads are public highways, constructed for States, and that the tax upon those who use them is authorized by way of reimbursing the builders and operators. The amount of this tax is not a subject of bargain between the shipper and the corporation, but a thing to be fixed by public authority, else the road is not a bighway, and the State has no right in it at all. The determination to charge as much as the traffic will bear he pronounces much as the traffic will bear he pronounces much as the traffic will bear he pronounces in the aggregate to be "the most enormous, oppressive, and unjust tax that was ever laid upon the industry of any people under the sun," and maintains that all the States have "a clear and indefeasible right to proteet their people against such wrongs and to exercise the power as a sacred duty." Be-low will be found the letter in full: Be-

THE LETTER.

YORK, PENN., Nov. 16, 1880. Committee on Railroad Transportation of

ble river.
It is the duty of the State to promote which is an exercise of the power of eminent domain. She can build a railway at her own expense, using the direct agency of her own officers, and after it is built she can make it free to all comers, or reimburse the cost by special tax on individuals who have occasion to use it. She can delegate the occasion to use it. Since can delegate the taking and the taxing powers to a corporation or a natural person, and that is what she always does when she grants a railroad charter. But in either or any case the road belongs to the State, and all the people have or if it expire by efflux or time, the State and invested the pro-

official work.

The State, having need for a public high-The State, having need for a public highway at a particular place, makes a contract with a corporation to open and put it in condition to be used, and by way of reimbursing the builders and operators, she authorizes a tax upon those who travel or carry merchandise over it. But this tax must be reasonable, just, uniform, prescribed and fixed, so that every citizen may know beforehand exactly how much he must pay, and so that when he pays or tenders the proper amount he will acquire an absolute and perfect right to the use of the road. The amount of the tax, toll or freight in any case is not a subject of bargain between the

rights, and the companies that run them being public agents, it is absurd to say that the State has no right to regulate and con-trol them in the performance of their functions by such laws as will prevent partiality, plunder and extortion. This is a power of which no free State can disarm itself by any act of its judicial, legislative or executive officers. They could as lawfully sell the State out and out, and deliver up the entire population to sack and pillage. But are not the franchises property in which the company have a vested right? Yes! The privilege of taking a certain feed and the franchises property in which the company have a vested right! Yes! The privilege of taking a certain fixed, prescribed, uniform, reasonable rate of toll from all persons alike, according to the use they make of the road, is a power that the State may bestow upon any person, natural or artificial. But no lawful franchise to take toll on a public highway can exceed those limits. A charter that goes beyond this is void. Those companies will oppose any effort to bring them down will oppose any effort to bring them down to a reasonable rate with the argument that such reduction is a violation of the contract between them and the State. But on the principle laid down by Judge Baldwin in the case above mentioned, a charter is inopera-tive which authorizes a maximum of toll or two which authorizes a maximum of toll or fare so high that the company is able without exceeding it to exclude the people from using their own road. In the Granger cases from Iowa and Wisconsin the bargain was that the companies might fix their own rates. But the Supreme Court of the United States held that a subsequent law to restrain them within reasonable limits was no violation of the original contract. This no violation of the original contract. This principle applies to a company whose maximum rate is unreasonably high, because such a rate is practically the same thing as no limitation at all. The conclusion that all the railroad corporations in the country may be constitutionally restrained to reasonable and just charges is not merely drawn from the fact that railroads are public highways. If they owned the corpus of the road and used it in the business of a common carrier, they might be compelled to behave them selves justly to all their customers, and submit to any regulation for the public good. The unanswerable opinion of Chief Justice Waite in Munn vs. Illinois (Otto 4, p. 113) settles that. The reasonableness of the freight tolls or

taxes that may be charged upon any rail-way will depend on the expenses of running and repairing it and on the cost of construction. The latter will, of course, be the principal element in the calculation, for the tolls ought to be high enough to give the corporators a fair profit on the capital they have actually invested. But many of these corporators are the corporators are the corporators are the corporators. compel railway companies to perform their duties to the public on proper terms. I will answer your questions as directly as possible, but without observing the order in which you put them. You desire above all things to be just. The legally vested rights of railway companies, like other rights of property are sacred, and no violettees. you put them. You desire above all things to be just. The legally vested rights of railway companies, like other rights of property, are sacred, and no violation of them comes within the scope of your design. But on this question railroad men misunderstand their situation. They believe, or pretend to believe, that railways are the property of this question railroad men misunderstand their situation. They believe, or pretend to believe, that railways are the property of the companies authorized to run them, which is a cardinal error and the parent of much false argument. A public highway cannot be private property, and a railroad laid out and built by the authority of the State for the purpose of commerce is as much a public highway as a turnpike road, canal or navigable river.

It is the duty of the State to promote

of the road is to be measured by the nominal amount of those bonds and shares. It is easy for a competent engineer to tell how much to be honostly done and liberally paid for. That being ascertained, you have the true basis of a calculation which will show how much the tolls ought to be. Most of our Western roads were built with the proceeds of public lands granted mediately or immediately by the United States to the several companies which now have them in charge. It is the duty of the State to promote intercourse and trade, by making highways of the best sort through her territory. To this end she may take land and materials, of making, stocking and running the roads. The two companies between Omaha and San Francisco raised in cash out of government bonds, lands and mortgages of their fran-chises four or five times as much as they necessarily expended upon the roads. The stockholders, without paying anything, put the enormous surplus into their pockets. These roads, thus built at the public expense, and in some cases paid for by the public five times over, are now claimed as the private belongs to the State, and all the people have a right to use it upon compliance with the necessary regulations and payment of the proper tax. The corporations who have got into the habit of calling themselves the cowners of the railroads have no proprietary. The corporations who have got into the habit of calling themselves the companies to take reasonable tolls owners of the railroads have no proprietary right, title or claim to the roads themselves, but a mere franchise annexed to and even. can have in your shop.

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The center of rivet being only three-fourths of an inch from the cutting edge, they have nearly double the cutting power of most other kinds.

Tight, title or claim to the roads themselves, but a mere franchise annexed to and exercisable thereon. They are the agents of the grantees with a title which could not be State for the performance of a public duty. If the franchise be forfeited or surrendered formed. If they sold or mortgaged the land takes possession of the road and runs it her-self, or employs a new agent. The company cannot keep the road, any more than an out-izes them to take a fair profit in the shape cannot keep the road, any more than an out-going collector of a port can appropriate to himself the custom house where he did his tolls as if the capital to build the road had been raised by themselves; that is to say, those companies which built the railroads with capital donated by the public have the same right as other companies to charge a reasonable toll, but their demand of exces-sive tolls, though not worse in law, seems in the eye of natural reason a greater outrage. If railroad corporations have the unlimited

power which they claim, then all business is at their mercy; agriculture, commerce, manufactures, must suffer what they choose to inflict. They may rob labor of the bread it wins, and deprive all enterprise of its just reward. Though this power does not be-long to them legally, they have been permit-ted to usurp it, and I need not tell you that they have grossly abused it. They arow that they make their exactions with an eye single Rend for List and Discount.
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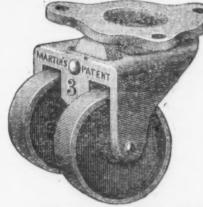
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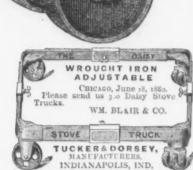
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All sorts of Hardware and Merchandise for import and export purchased on commission.

ROBERT SORBY & SONS SHEFFIELD,

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FORGED STEEL SHEARS,

The Gifford Manuf'g Co., UNION CITY, CONN.

THE SLAYTON RAZOR.



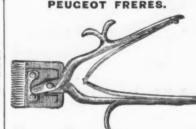
PERFECTION For Cutting Quality. landles of German Silver, Nickel Plated. Blades of the Fin-est Steel in the World. Every Razor Fully Warranted. L. C. TOWER, Thermometer Manufr., 39 Exchange St., Rochester, N. Y., Sole Agent. Canvassers wanted. Sample by mail, \$1.



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Manufacturers of SPRING CALIPERS & DIVIDERS.

Cutlery. French Clippers PEUCEOT FRERES



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Albion Steel Works, Sheffield, MANUFACTURERS OF

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STEEL,

Table Knives, Razors, Shovels, &c., &c., of every description.





Granted 1749

J. R. TORREY RAZOR CO.,



For Fine Cutting Qualities, and Adapta-ion to all Beards, our

RAZORS Have no equal

Price Lists on application

LAMONT COMBI-RAZOR NATION

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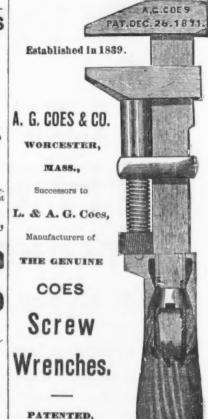
ton with Single Brass Beam\$60.0 Larger sizes proportionately low in prices; and every Scale warranted Accurate and Durable. Agents wanted.

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FORGED OX SHOES. The only Ox Shoe made with patent concavity to fit hoof. Also Flat Shoes with two calks complete, at same price.

Worth double any Malleable fron Shoe. Greenfield Tool Co., Greenfield, Mass.



The backstrain when the wrench is used is borne by the har-not by the handle. The strongest Wrench made, and the only suc essful Re-enforced Bar. None genuine unless stamped

May 9, 1871.

August 1, 1876.

December 20, 1871. December 28, 1875.

A. G. COES & CO.,

Our Agents, GRAHAM & HAINES, 113 Chambers St., New York, carry a full line of our goods, and will be pleased to serve you at factory prices.

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Wrought Bar, Head and Screw.

Owing to the in-

creased demand for these justly Popular Wrenches. we are now manufacturing more than any other establish-

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Our Wrench having been imitated by other manufactur ers, we have adopt Mark, and will hereafter stamp all our Roods.

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And Agent for Barnes' Wood-Working Machinery' and Lathes.

Clements' Steam Band Saw. Kimball's Foot-Power Band Saw.

THE WM. ROCERS MFC. CO. Superior Silver-Plated Table Ware.



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NEW YORK OFFICE, NO. 100 CHAMBERS STREET.

HALL, ELTON & CO.,

Electro Plated Ware, German Silver and Britannia Spoons.



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Salesroom, 75 Chambers Street, New York.

HOLMES, BOOTH & HAYDENS,

Finest Quality Silver-Plated Spoons, Forks, Knives, &c.



NOTICE .- We guarantee the base of our Spoons, Forks, &c., to be full 18 per cent. Nickel Silver, and extra heavily plated with pure Silver. Our goods are all hand burnished, and are first-class in every respect. We pack our Spoons and Forks one dozen in each box.

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the most simple, most effective and most convenient ever introduced, and the immense sale we hare having shows their great popularity and superiority.

so complete in its action, operating with a There never was a Spring made that is so durable, uniform pressure, holding the door tight when closed, and allowing it to open without increasing the pressure at any point

When the door is opened about 130 degrees of a circle, it will press and hold it open. The Spring is easily unhooked and rehooked-in an instant-from the door and also from the jamb, without removing a screw or pin.

This is a Convenience Possessed by no other Spring in the Market.

We are making this season three sizes, viz: No. 1 For Screen or Light Storm Doors. No. 2 For Medium Doors.

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They are for sale by most of the prominent jobbers of the United States and Canada.

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15, 17 & 19 North Water Street, ROCHESTER, N. Y., Manufacturers of

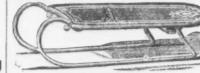
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GEORGE W. BRUCE, 1 Platt St., New York, ATLANTIC SCREW WORKS, FLORENCE TACK CO.

Wood Screws, Tacks, Nails, &c., of every description, of the best quality, at the lowest rates,

Sprague Novelty Works, THE ULSTER SLED



Patented March 13, 1877 Trade Mark registered October 23, 1876. Runners and Cross Bars of One Piece of Metal,

Making the Strongest, Prettiest and Most

The Coal Miners' Convention at Pittsburgh.

During the past week a delegate convention of the miners of the Pittsburgh, Wheeling and Steubenville districts has been held in Pittsburgh. The claim is put forth that these delegates represent some thousands of miners, and there is no doubt that they ably \$75,000,000. The farmers must submit to this highway robbery or else keep the products of their land to rot on their hands. They submit, of course, as all other not an open question, for it is well known that they are not, and as to the number that they can be fairly said to speak for there are very conflicting stories.

The first business before the convention was the consideration of the arrest of the

T. That the coal miners have the right as American citizens to organize for social and

financial improvement.

2. That they have the right to elect a suitable person to transact and superintend their business. 3. That the secretary so elected and paid

has a right to call a meeting of miners.

4. That the arrest and incarceration of D.

R. Jones in violation of constitutional rights was unnecessary and dangerous, and an un-warranted attack upon every workingmen's

association in the country.

5. That if the Waverly Coal and Coke Company doubted the constitutional right of Secretary Jones to call meetings, and of the miners to meet, it would have been more equitable and just for them to have insti-tuted civil proceedings to restrain him by means of an injunction.

 That the resort to criminal proceedings by the said company when civil action would have been better, was rash, unnecessary, malicious and unchristian, and a stab at the onvalescing relations existing between the miners and operators.
7. That the convention petition the legis-

lature to pass laws to protect all legitimate trades unions, and protect the officers of such

unions in the proper and legitimate discharge of their duties as such.

8. That the general secretary be allowed discretionary power to collect funds to defend himself and Mr. Anderson; in the from the common market. The case you discretionary production of \$4 from New York to Salt Lake, fend himself and Mr. Anderson; in the mention of \$4 from New York to Salt Lake, fend himself and Mr. Anderson; in the event of their conviction the surplus to be not the most unrighteous, but it is as gross devoted to their own personal uses, but if acquitted the surplus to be turned into the event find.

acquitted the surplus to be turned into the general fund.

The next matter considered was the reformation of the Baltimore and Ohio miners and operators. A resolution was adopted that a levy of \$1 per month be made upon all miners, to support such B. & O. miners as will not work for 3 cents.

A resolution was adopted that it was the sense of the convention that payment every two weeks shall be conceded by all employers, and the secretary was directed to use his reasoning powers and tact to have the

his reasoning powers and tact to have the

resolution placed in effect.

Another resolution was adopted that all miners who work for less than the regulation price shall be considered as enemies of their fellow men.

their fellow men.

It was also resolved that owing to the inferiority of the Waverly coal it was deemed inexpedient to pay off the percentage of Waverly miners' back pay, and the opinion was expressed by resolution that the only way for the miners of this company to liberate themselves was to give notice that at the end of 60 days they will terminate their contract.

The discussions before the convention The discussions before the convention took a wi ie range, and the advantages of a uniforn check-weighing system, an eighthour law and several other questions of a semi-political character were treated at length. It was decided to sit up with, reason with and coax B. & O. R. R. miners working for 3 cents to come out and join their brethren who ask 3 deepts. In order their brethren who ask 31/2 cents. In order to produce this uniformity, it was deemed advisable to enact a law that no matter to which point of the compass coal is shipped, a uniform price shall be demanded for mining it. In order to solidify matters and increase the effectiveness of the union, a treasurer and five trustees were elected, and it is intended to move systematically

hereafter. The appended resolutions convey the objects aimed at by the Convention :

1. That we take immediate action to persuade the B. & O. miners to desist from endangering the unity, harmony and repose of persuade them to demand of their employers the same wages as paid by all of the other operators, both on the rivers and railroads. 2. That a delegate from each mine in this

2. That a delegate from each mine in this district be elected and instructed to visit the B. & O. miners on next Monday, December 6, 1880, and call and hold a mass meeting at some convenient place, and use all peaceable and reasonable means to persuade them to demand the district price, viz., 3½ cents.

3. The Pittsburgh miners, both river and reilroad, are hearty united and reasonable means to persuade them.

railroad, are hereby united and consolidated into one body: that, hereafter the price and system of mining shall be uniform, whether the eaal be shipped east, west, north or south, and that no miner or a number of miners within the district accept any reduc-tion without the consent of a majority of all

the miners in convention legally assembled.

4. That the delegates in convention assembled deem it necessary to elect a sembled deem it necessary to elect a treasurer and five trustees to receive and account for all moneys from the miners except the general secretary's office and labor expense levy, which shall go direct to the general secretary, as heretofore, said treasurer to give a bond of \$2000 for the faithful performance of his duties, and said bond be given and made to the trustees.

5. That all funds coming from the miners

5. That all funds coming from the miners into the hands of said treasurer shall be deposited in some good and reputable bank in the city of Pittsburgh, to be drawn upon only

ilar impositions. Common justice imperatively requires that freights be fixed, settled, and prescribed by law, and that they be not changed at the mere will of the railroad companies. But the discriminations road companies. But the discriminations which make the rates unequal are the most odious feature. A grain dealer at Baltimore was as follows: gets a reduction or drawback which is denied to others, and he makes a fortune for himself while he ruins his competitors by underselling them. A single mill at Rochester can stop the wheels of all the rest if its flour be carried at a rate much lower. By discrimination of this kind the profits of one coal mine may be quadrupled, while another with all its fixtures and machinery is rendered worthless. Such wrongs as these are done, not only in a few sporadic cases, but generally and habitually on a very large scale. Certain oil men, whose refinery was on Long Island, got rebates amounting to \$10,000,000 in 18 months, and 79 hous s (I believe that is the number) engaged in the same business were broken up. The creditors of the Read-ing Railroad, having coal lands of their own, made discriminations between themselves and others, which drove all competition out of the field, gave them the monopoly of the Philadelphia market, and enabled them to charge for their coal as they charge for their charge for their coal as they charge for their freight—whatever they pleased. Thus, pro-ducers, dealers and consumers all suffer to-gether. Worse still than that, the prosperity of large communities is blighted by the re-fusal of the railroads to carry the products of their farms, gardens and shops unless they submit to the payment of rates much larger than what are charged on similar goods from other regions much further away from the common market. The case you

ple, then the rights of all citizens are pre-cisely equal, and all discriminations are unlawful. Without reference to the public

right of property, they are so shamefully imperious in their general effect and in their

denly, and in particular to make the charges

ruinously high, without any notice at all.
The farmers of the great West have made a

large crop of grain, which they may sell at fair prices if they can have it carried to the Eastern ports even at the unreasonably high

freights of last Summer. But just now it is said that the railway companies have agreed among themselves to raise the freight 5 cents per hundredweight, which is equal to an export tax upon the whole crop of prob-

particular consequences that no well-gov-erned State will endure them. These railroad and transportation com-panies connect themselves with everything. The promotion of commerce, internal and foreign, the interests of buyer and seller, the rights of producer and consumer, the needs of the poor and the prosperity of the rich, all cry aloud for some system of management which will compel them to do the duties they owe to the public faithful y, at rates reasonable, fixe i, uniform and equal, without extertion, without wanten changes, without discrimination. The laws necessary for this purpose are not difficult to frame. If you will look at the Constitu to frame. If you will look at the Constitu-tion of Pennsylvania as amended in 1873, you will find in the seventeenth section a series of provisions which, if carried out and en-forced, would be amply sufficient. But the men and their advocates have managed to impress the Legislature with the idea that they are above the Constitu-tion. They assert that every restriction imposed upon them in the interests of justice, equality and fair dealing is a violation of the contract embodied in their charters. All this is no doubt very false dectrine, but they contrive in some way (I really do not know how) to make the State authorities accept it as true. I maintain that all the States have a clear and indefeasible right to States have a clear and indefeasible right to protect their people against such wrongs, and to exercise the power as a sacred duty. When that duty is properly performed the internal trade of each State will cease to be enslaved and crippled as it is now. But the commerce between States will still be open to inequalities and liable to oppression and plunder by transportation companies, unless the national legislature does something to save it. Congress has power "to regulate commerce between the States." Is it not strictly within the scope of that authority when it makes a law forbidding carriers through the State to injure, impede or dewhen it makes a law fortuning carries through the State to injure, impede or destroy the general trade of the country by extravagant discriminating charges? If that be not a regulation of inter-State commerce what would be? The power being conceded, an effectual mode of righting the wrongs now complained of can easily be devised.

Doubtless you are right in the belief that public opinion will be in favor of your movement. Reflecting men cannot deny its justice. But the influence of these great corporations can hardly be calculated. They have methods of defense and offense which make them almost invincible. You have referred to portions of their history which proved this. Some of the State governments are literally subjugated by them now. It will require a strong organization and much labor to reduce them. Undisciplined militia in the open field make a poor fight against regulars intrenched. What are corn-stalks against cannon? Such think of regulating these affairs by the agency of commissioners. In England I believe that plan has been a complete success; in California I understand it is a dead

This paper is much longer than I intended to make it, and as an answer to your questions, it is less categorical than it ought to be. But you must take it as it is, and believe me your obedient servant.

Perfect Sled ever made.

Sold by all dealers.

CROSBY, SAHLER & CO.,

Rondout, N. Y.,

Manufacturers.

W. H. QUINN & Co., 79 Chambers St.,

New York Agents.

Be and Most take take to the city of Pittsburgh, to be drawn upon only upon checks or orders, signed by three of the trustees.

6. That a levy of 10 cents per capita be laid all over the district to liquidate the debt incurred by the fourth pool camp last summer. The surplus, if any, to be turned over to the general fund.

7. That the terms of office of the treasurer and the five trustees this day elected.

H. D. SMITH & CO.,

Plantsville. Conn..

Manufacturers of the

BEST QUALITY CARRIAGE MAKERS' HARDWARE.

Manufacture the Largest Variety of Forged Carriage Irons of Best Material and Workmanship.

PRICES LOW FOR QUALITY OF WORK FURNISHED.

FOR PRICE

The Saranac Nails are hammered hot and the finishing and pointing are done cold. Quality is fully guaranteed. For sale by all leading iron and hardware houses. PLATTSBURG, N. Y. S. P. BOWEN, President and Treasurer. J. W. LYNDE, Secretary,

ELY & WILLIAMS, Gen'l Agents for Eastern and Middle States, 1232 Market St., Philadelphia; 1782 Water St., New York; SARANAC HORSE NAILS, 36 Oliver Street, Boston. S. H. & E. Y MOORE, Gen'l Agents for Western States, 163 and 165 Lake Street, Chicago, Ill. SAM'L G. B. COOK & CO., Agents for Southern States, Nos. 67 and 69 (old Nos. 5 and 7) German Street, Baltimore, Md.

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Bridgeport, Conn.

We desire to impress upon the trade the Fact that Black and Pink Edge Gun Wads, now manufactured by us, are Unequaled in Quality, and afford jobbers a larger Margin of Profit than the Imported.

CENTRAL FIRE WATER-PROOF PERCUSSION CAPS.

BRASS & PAPER SHOT SHELLS, PRIMERS, &c.

Agents: THE PATENT SELF-FEEDING STAPLE SET-TER FOR WIRE FENCES.



alties, address Philin. Novelry Minuig. Co., for herry St., Philadelpaia, Pa. Export Agents. Pair-niks & Co., 311 Broadway, N. Y.

T. NEW'S

T. NEW, 39 John St., New York. BARRETT, ARNOLD & KIMBALL, Western Agts., Chicago, Ill. LANE'S FAUCET. Price, \$3.00.

For Light or Heavy Molasses, Gils, Varnishes or other Fluids.

MANUFACTURED EXCLUSIVELY BY LANE BROS., Millbrook, N. Y. General Agency, GRAHAM & HAINES, 113 Chambers St., New York.



MARTIN'S ENGLISH HORSE CLIPPERS. Special Prices

\$30 for Per Dozen. TRADERMARK Quantities. Sample Machines can be sent by mail at additional cost of 25 cents.

This Machine is acknowledged by practical clippers to be the best machine made. It is well add and easily worked, leaving the animal's skin smooth and equal to a summer's coat and all of gloss. Have written certificates to the fact, soo horses having been clipped by a single achine. All Clippers of this make are stamped R. Martin improved, on lower plate and also a handles, as in cut. JACOB J. SHANNON, 1707 Market St., Philadelphia,

PRENTISS PATEN

ADJUSTABLE JAWS, Stationary & Patent Swivel Bottoms HALL MFG. CO., 23 DEY ST., NEW YORK.

Send for Circular.

Successful in a First Premium Competitive Ohio State Fair Xenia and Forty-Four Dayton, over Competitors. twelve and fourteen of the Leading DURABLE Harrows. ADJUSTABLE TEETH.



We have a line of Equalizers, Doubla Single-Trees that are Unsurpassed for Utility.

Manufactured Exclusively by R. P. Kimberlin & Co. INDIANAPOLIS, IND.

New York.

Delusion Rat and Mouse Forngerly manufactured by



CLAUDIUS JONES & CO., At Bridgeport, Conn., Have Removed to ERIE, PA.

This is the most successful Rat and Mouse Catcher on the market, Send for Price Lists.



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94 Chambers St., New York, Agents for American Screw Co.'s Wood Machine and Rail Screws, Stove and Tire Bolts, Rivets, &c. G. F. Warner & Co.'s Carriage Clamps.

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Lamp Posts, Valves, &c., Mathew's Pat. Anti-Freezing Hydrants. 400 CHESTNUT STREET.

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RELIABLE BY ALL STATIONERS.

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. & J. TIEBOUT,

Brass, Galvanized & Ship Chandlery Hardware,

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Vulcanized Rubber Fabrics

MECHANICAL PURPOSES. RUBBER BELTING and PACKING.

Machine Belting, Steam Packing, Leading Hose, Suction Hose, Grain Elevator

Belting, Steam Hose, Piston-Rod

Packing, Gaskets and Rings.



Vacuum Pump Valves Ball Valves, Car Springs. Wagen Springs, Gas Tubing, Machine Belting, Wringer Rolls, Billiard Cushions. Grain Drill Tubes, Emery Wheels.

This company manufacterators at Chicago, which

LINEN and COTTON HOSE. Pat. July, 1873

Plain and Rubber Lined. Circular Woven-Seamless Antiseptic RUBBER LINED "CABLE" HOSE and "TEST" HOSE, Vulcanized Para Rubber and Carbolized Duck, for the use of Steam and Hand Fire Engines, Force Pumps, Mills, Factories, Steamers, Ships, Hospitals, &c.

"TEST" HOSE. "CABLE" ANTISEPTIC. Emery Wheels and Packing.



ORIGINAL Solid Vulcanite EMERY WHEELS

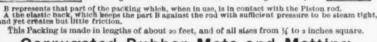
LARGE WHEELS MADE ON CAST-IRON CENTER IF DESIRED. of these Wheels are such that they can be used with great advantage and ting, grinding, and finishing Wrought and Cast Iron, Chilled Iron, Hardenet, e., Glass, etc. These Wheels are extensively used by manufacturers of Hard ge Tools, Plows, Safes, Stoves, Fire Arms, Wagon Springs, Axles, Skates, Agrints, and small Machinery of almost every description. PATENT ELASTIC



Rubber Back Square Packing

BEST IN THE WORLD.

For Packing the Piston Rods & Valve Stems of Steam Engines & Pumps.



Corrugated Rubber Mats and Matting, For Halls, Flooring, Stone and



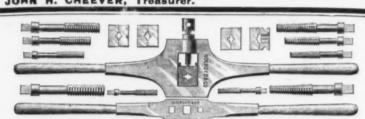
Iron Stairways, &c. This practical and indispensable article—especially for wear where exposed to ice, snow, or slush—was first introduced by this company several years ago, and its real value is in being almost indestructible, when proper materials are used in its manufacture, whilst the cheap, e public by reckless imitators of eur patent goods soen becomes brittle dress



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oferior quality forced on the pu

NEW YORK BELTING & PACKING CO., JOHN H. CHEEVER, Treasurer.

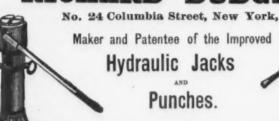


HOLROYD & CO., Waterford, N. Y.,

STOCKS AND DIES, For Blacksmiths, Machinists and Gas Fitters.



RICHARD



Roller Tube Expanders and Direct Acting Steam Hammers. Communications by letter will receive prompt attention. Jacks for pressing on Car Wheels or Crank Pins made to order

Manufacturing Establishments.

This Hose is in use in over 300 Fire Departments; weighs but 58 pounds to the section of 50 feet; will stand a pressure of 400 pounds to the square inch; guaranteed for three years; will retain its strength for many years. We have many testimonials showing continuous service for nine years, where the hose is in good condition for fire service. For sample and price, address

AKRON RUBBER WORKS, Akron, Ohio.



Beardsley Scythe Co.,

be for one year, and to commence on the circle and the process the initial bath should be low in silicon, because silicon fluxes and destroys the

first day of January.

8. That the rules for the government of

filed with the trustees,
12. That in our opinion eight hours per

day should constitute a legal day's work, and that our financial and intellectual improvement necessitate the passage of a strict national eight-hour law.

13. That, once more, we urge upon all

miners, for the sake of uniformity, to have check-weighmen placed on every tipple in the district.

That the thanks of the convention are hereby tendered to the worthy president for his patience and efficiency, and to the secre-taries and sergeant-at-arms for their ser-

The Basic Process at Eston.

The details just published by Mr. E. Windsor Richards on the basic process as practiced at Eston, is full of interest. It will be remembered that the firm of Bolckow, Vaughan & Co. have erected some large converters at the Cleveland Steel

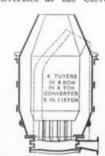


Fig. 1.—The Eston Converter.

Works, of a size and form which they expected would enable them to overcome some of the difficulties they had experienced when working with the old converters on the basic system. The accompanying illustration shows the form and size of the converter adapted. It is "concentric," while the old converter is "eccentric." During the operation of blowing, the lime and metal are lifted by the force of the blast, and when that force is somewhat expended, the materials fall again on to the bottom in the subject, viz., the possibility or otherwise of

the local secretaries go into effect on the first day of next month.

g. That the delegates elected to go to the B. & O. be paid out of the general fund.

That the trustees be paid \$3 per day over the period of the second in the period of t to work economically the metal should be and their expenses while in the exercise of their duties.

11. That the general secretary be authorized to turn over all moneys in his possession, except his own levies, to the general treasurer as soon as the bonds are made and filed with the trustees.

12. That in our opinion eight hours per same time low in sulphur. It would not same time low in sulphur. same time low in sulphur. It would, no doubt, very much help to keep sulphur low if manganese was added in the blast furnace, but manganese is a costly metal. At present we have succeeded in making a motpresent we have succeeded in making a mottled Cleveland iron with I per cent. of silicon and 0.16 sulphur, and white iron with
0.5 silicon and 0.25 sulphur, which, taken
direct from the blast furnace, have both
made excellent steel. But there is another
method of operating which relieves us from
the necessity of making a particular quality
of Cleveland pig iron. This second mode of
working is called the transfer system, because we transfer the metal from the acid to
the basic converter. The transfer system
makes it possible to take any gray iron direct from the blast furnace to the converter
without any consideration as to the percentwithout any consideration as to the percentage of sulphur, which is always low in gray iron. This gray metal is poured into a converter with a silicious lining and desiliconized, when, after say 12 or 15 minutes ized, when, after say 12 or 15 minutes' blowing in the ordinary manner, it is poured out of the converter into the ladle, and poured again from the ladle into a converter lined with dolomite, taking care that the highly silicious slag is prevented from entering the basic-lined converter. Then in the second converter it is only necessary to add sufficient lime for the absorption of the phesphorys of the metal. absorption of the phosphorus of the metal, and the blowing then need not occupy more time than is necessary for the elimination of the phosphorus—say, about three minutes. This mode of operation will, no doubt, give the basic lining and bottom a much longer life, but it has not yet been long enough at work at Eston to obtain the necessary experience to determine which is the better system of working; both are good and effec-tive, however, and have given excellent re-sults." Mr. Richards continues in the follow-ing words: "I have thus summed up in ten minutes what has taken about two years of constant work and the expenditure of large sums of money to accomplish. I am now able to say that the basic process has been brought to a technical and commercial success at the Cleveland Steel Works of Bolckow, Vaughan & Co. One feature of this new process seems to have been lost sight of by those who have written on the

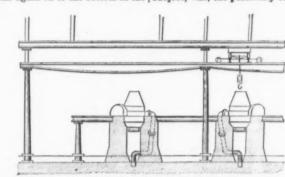


Fig. 2.—Elevation of the Eston Converters.

new form, while in the old form some portions would cling to the nose. Fig. I shows the old form of converter drawn inside the new form, and shows how the line additions cling to the outlet. The concentric form has also another advantage—it gives a much larger area of floor to work in, by enabling the metal to be poured into the converter when turned on its side with the nose pointing away from the converter ladle crane.

Said over and over again that the basic proing away from the converter ladle crane, said over and over again that the basic project the contrary of the present practice.

Mr. Richards gives the following account of the operations at Eston: "On the 18th of October last this converter was they are beaten. If the afterblow could be

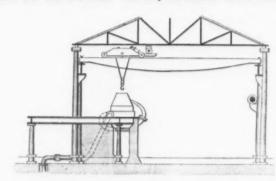


Fig. 3.—Side Elevation of the Eston Converters.

mixed with a small quantity of coal or coke is charged into the converter, and blown till the lime is well heated. The molten metal is then poured on the lime additions, the blast of 25 lbs. pressure is turned on, and the carbon lines disappear in about ten minutes; then after about two and a half minutes over-blow the converter is turned down, and a small sample just made, which is quickly beaten into a thin sheet under a small steam hammer, cooled in water, broken in two pieces, and the fracture shows to the GRASS, GRAIN & BUSH SCYTHES,

Hay Knives & Corn Knives.

West Winsted, Conn.

West Winsted, Conn.

In the year ending June 30, 1880, 75,439

Canadian settlers entered the United States at the ports comprised in the district of Huron. This exodus is causing some anxiety is added and is now being poured into the

set to work on the basic system, and was quite successful, answering the purpose well, and showing no more symptoms of gathering at the outlet than when making ordinary steel. Our plan of operation is exceedingly simple. The converter, as is usual, is first heated up with coke so as to prevent the chilling of the metal. Then a measured quantity of well-burnt lime, about 16 per cent. of the weight of molten metal, mixed with a small quantity of coal or coke

Thomas S. Hall, a prominent citizen of Meriden, Conn., died recently at the age of 53 years. He was a native of Brattleboro, Vt., and well known as the inventor of the automatic electric signals now in use on many railroads throughout the country.

The Iron

Metallurgical Review.

New York, Thursday, December 9, 1880.

DAVID WILLIAMS . . Publisher and Proprietor JAMES C. BAYLES . . . Editor. JOHN S. KING Business Manager

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Now that Col. Drake, to whom has been ascribed the honor of opening up the oil regions of Pennsylvania, is dead, claimants to dispute his honors begin to arise. strange that these keep silent until after the death of the most competent witness, and then put forth their claim. The new claimant is one Mr. Edward Baker, of Cumberland County, Ky., who puts in a claim for one Mr. John H. Baker. Mr. Baker's salt. At the depth of 80 feet petroleum facts to offer than this he had better have

an old salt well for years, but Col. Drake Not only was the jetty system attacked, but was the first man to deliberately bore for Capt. Eads' financial credit. Assertions oil, not salt water, and his well was the were made which, being partially true, were pioneer well in what is now the Pensylvania made worse than bare falsehood; facts were oil regions.

Civil Engineers and Military Critics.

In our last issue we reviewed at some length an interesting work on the history of the jetties at the mouth of the Mississippi River, by E. L. Corthell, C. E., which suggests something more than could properly be included within the scope of a book review. This book is not merely a history of one of the greatest triumphs of modern engineering; it is a history of a struggle not only against the forces of nature, but against the active hostility of the military engineers holding commissions from the government. It is no doubt owing to this hostility that Capt. Eads must content himself with the unqualified praise of his professional brethern, and forego any national recognition of his truly national services. Our conservative English neighbors are wont to shower honors on feats of engineering, in some instances where the results have proved disastrous failures, and this custom on the Continent is universal. Such recognition is not unknown in this country. Witness the haste with which Congress and the government officials rushed to congratulate the projectors of the first Atlantic cable. The great metropolitan city appointed a holiday and had a procession, while the President of our Republic sent a message of congratulation to Queen Victoria; and all this was done when success was more than doubtful. Yet the jetties, of the greatest benefit to the nations of the globe, affecting as they do the industries of one of our largest and most fertile sections, by affording a safe outlet for the shipments from thousands of miles of our West and South, are projected amid predicted failures, built in the face of the most bitter opposition and maintained in spite of all assertions to the contrary; their author and his assistants are comparatively unknown, certainly unrecog-nized, and finally obliged to fight for the price which Congress grudgingly promised and reluctantly doles out. The reasons for all this are plainly set forth in Capt. Corthell's history. A careful perusal of the evidence adduced in the shape of maps and documents, will repay the reader. The author's modesty has prevented his statement of personal efforts extending through several years, and resulting in his shattered health; but the writer, having seen him at his post and witnessed his efforts, takes this opportunity to state that the able co-operation of Capt. Corthell did more to achieve the success of Capt. Eads than that of any other one man.

We sketch briefly the history of the enterprise from this work: In 1726 a system of dragging harrows over the bar of the Mississippi was resorted to, and various schemes of improvement were broached. In 1837 the United States government undertook dredging, under the advice and control of its Engineer Corps. In 1852 the War Department, having \$75,000 to spend. recommended stirring up the bottom, dredg-ing by buckets and building five miles of jetties in Southwest Pass, to be extended annually into the gulf as the latter should shoal; and here is the point of the argument. The Engineer Corps was committed to the fact of shoaling beyond the end of the jetties. They also recommended the closing of the lateral outlets, and finally a ship canal, if these schemes should fail. In 1853, by stirring the bottom, a depth of 18 feet of water was obtained, which in 1856 was filled again by the silt of the river, and from this date to 1875 many plans were tried and much money spent in obtaining temporary benefits; for, as Capt. Corthell shows, the United States Engineer Corps failed to grasp the case and its emergencies. After 37 years of failure they revived the ship canal scheme, which was originally advocated in 1832 by Boston. Louisville. Cleveland. Baltimore. St. the Chief Engineer of Louisiana. that time to 1871, it was considered and advocated by the Engineer Corps, and in that year Major Howell, having made a survey, reported in its favor. In 1873 an army board, considering the canal and the jetties, reported against the latter for the following reasons: The jetties would be undermined at the sea end; their foundations would be uustable at best, and they would simply advance the bar into the gulf—the old idea of 1852 again. Gen. Humphreys in particular has put himself thoroughly on record in this matter.

Now begins the real history of Capt. Eads' work, and if the opponents of our system of governmental education find in the history of the latter enterprise able argument for the national banking idea. The earliest its abolition, so much the worse for that and fullest literature of the discussion which out in a memorial approving it in general. system, or, indeed, any system which seeks preceded the suggestion of the national Captious criticism of the bill as a whole, to thwart a great work because it is in opposition to the expressed opinions of a few. When the United States Engineer Corps had and preceding years. We believe that the ing toward giving us a better one. The once recorded their opinion against the jetties, they did not intend to have it set tem was made in our columns, and that opportunity for the passage of such a bill, aside by any upstart civilian. It was to be story is that in 1829 six gentlemen, of final and infallible. Hence means were rewhom Mr. John H. Baker was one, began sorted to which no business man would conboring in the town of Burkesville, Ky., for sider honorable to bring about that failure given the matter any particular attention. gave the business community every opportunity every eve of Capt. Eads which they predicted, and, inwas struck, and, owing to ignorance as to deed, desired. The great interests of the its use, thousands of barrels were allowed country were nothing to them. It was not promoting the National Bank law and the we doubt if a bill more perfectly meeting the to run to waste. If Mr. Baker has no better the truth which was wanted; it was its tariff of 1861, but there are a few still living requirements of all sections of the country suppression which was desired. One officer who will remember the nature and importkept silence. It is not claimed that Col. in particular certainly laid himself open to ance of its work in those exciting times, and Lowell has prepared. Drake was the first to get oil by boring. that fatal charge, which proven, has but one how some of its predictions, viewed in the Indeed, it has been procured and bottled at sentence—that of dismissal "for conduct light of subsequent events, seem to be al-Tarentum, in Allegheny County, Pa., from "unbecoming an officer and a gentleman," most prophetic.

distorted to change their meaning, and conclusions were stated drawn from insufficient data and reasoned to a false result. Finally, when the indignant and outraged Eads, having challenged proof and sought for justice, was compelled (after proceeding through the usual red tape from one office to another) to appeal to Congress, a survey was be considered in any respect favorable to ordered, and the result having utterly disproved the assertions so indecently made, the report was quietly suppressed for a time on trivial pretexts, against Capt. Eads' protest, so that he might absolutely fail for lack of money, if for no other reason. At last this report appeared, and, to the discomfiture of the army engineers, appeared also the depth of water Capt. Eads had claimed Was this the end ! Not so. Eads' opponents, finding their arguments and not the jetties on an unstable foundation, took up the old cry of thirty years' standing that the sea end was shoaling, so surveys were ordered which disproved this assertion also. What now remains for these doubters Does the world move after all? Just here the thought suggests itself why, in this age of progress, should United States engineers be considered as a higher court-a star chamber of the profession? Let any intelligent mind compare their works with those of civilian engineers, always bearing in mind that cost forms no part of a government scheme in deciding between methods of construction. The works of civil engineers are the history of the nation. One can see them by the thousand. Every railroad, every factory and every industrial enterprise is a monument to the genius, skill and ability of this profession. When we ask for the records of the military engineers there is a pause. One general officer is at Hell Gate and has been for years. Some of the force are improving the Ohio River at the Davis Island Dam. Others are holding a solemn pow-wow over that immonse national burlesque, the Washington Monument, but their greatest and most numerous efforts are on file in the archives of the War Department, with the Fort St. Philip Canal scheme carefully preserved against loss. These are the men who have opposed the jetties because a civil engineer has dared to dispute and, worse, disprove their dictum, and this constitutes their record. Capt. Eads has written his record once in those magnificent trusses spanning the Mississippi at St. Louis, and again, as Philip Canal scheme carefully preserved the Mississippi at St. Louis, and again, as

ties. As to that of their construction, Capt. Corthell shows this in detail, not exaggerat ing the natural difficulties overcome or giving aught but facts. When we consider the item of stone alone, of which upward of 62,000 cubic yards were used, and are told it was brought 1400 miles, we are astonished at the resolute will that could overcome such obstacles. The financial aspect is also treated, obstacles. The financial aspect is also treated, and the ruinous rate of interest which was exacted from the tendency of the damaging reports circulated as above alluded to, is set forth, and glory is all that Capt. Eads must expect where he should and would have received profits. The question of permanency is also discussed, and the method shown by which the very deposit sought to be removed is made to strengthen the jetty walls-a fact of itself establishing how well Capt. Eads understands the currents of the Missis sippi and their effects. We commend Capt. Corthell's history to the careful consideration of army engineers, as from it the many honorable and honored members of that body can see how much and how serious injustice has been done an eminent civilian by their chiefs and associates. Of the jetties, it is enough to say that they have had a remarkable influence on the commerce of the Mississippi Valley. Since the 1st of last January St. Louis has shipped to Europe twice as much grain by way of New Orleans as passed out of the country by that route in the corresponding period of last year. It is stated that the shipments are at present limited by the want of barges with which to move the grain, and fleets of boats are to be built to supply the want.

In his history of the origin and progress of the national banking system, Hon. John Jay Knox, Comptroller of the Treasury. shows a very limited knowledge of the events attending the birth and growth of bank scheme to Congress in 1861, will be found in the files of The Iron Age of that will do much to defeat its passage and nothevery detail of the system had been fully presented and exhaustively discussed by Not many of the present readers of The Iron Age remember the part it played in by comment, criticism and suggestion, and

The Lowell Bankruptcy Bill.

The action of the New York Chamber of Commerce on the Bankruptcy Bill prepared by Judge Lowell, shows that it is a measure on which there is little likelihood of union and harmony among those whose help was ounted on in carrying the measure through ogress. The special committee appointed consider this bill made a report to the Chamber at its last meeting which cannot the measure. Their report says :

the measure. Their report says:

The proposed law bears on its face, in its merits, evidence of its New England origin. In Judge Lowell's original bill, as presented to Congress, the career of the bankrupt was examined, in part, for the very limited period of three months preceding his adjudication as a bankrupt. This limit has been extended in the revised bill to six months, which is an improvement; but why place any special limit of three or six months, or why limit the ial limit of three or six months, or why limit the xamination to a few offenses? Bankruptcy in ontinental Europe has always been treated as a lasi criminal offense, while in England it has been regarded as either a misfortune or a crime quiring investigation. In the proposed bill these entials-which are regarded as of the first im. rtance—appear to have been purposely over-oked. The distinction between bankruptcy and solvency should be clearly defined. It is more portant to discourage the occurrence of bankimportant to dissuring the sectification of insolvent estates. Too much importance can scarcely be attached to the passage of a proper bankrupt law, or at least to the prevention of an improper one. We are supposed to be a commercial nation, and it is well to bear in mind that, without our country, there does not exist a single nation that does not possess a bankrupt law; but a bankrupt law implies something more than the Lowell bull, which may be said to be only a well-Lowell bill, which may be said to be only a well-contrived arrangement or law for the economical distribution of an insolvent estate. Our objections to the proposed bill have been concisely stated in detail in a previous report, and hence it is only necessary to say, in this supplementary paper, that a law which invites every debtor in the courtry, whether he be a trader or tramp, who may be indebted in the paltry sum of \$300 to enter voluntarily into bankruptcy and be discharged from his obligations at a trifling expense at public charge (for the salaried officials created by this ile charge (for the salaried officials created by this act are paid by public expense), can hardly be called a law for the prevention of insolvency. This limit of \$300 should be greatly increased; it should be at least \$100. The requirements, for a lischarge in composition settlements in Judge Lowell's bill, should be raised to conform to the English standard, and the following provision, which in substance has formed a part of every bankrupt act that has existed in Great Britain, should be attached to any bill that Congress may

the Mississippi at St. Louis, and again, as was fitting, where this mighty river pours its turbid waters, into the Gulf of Mexico; while every one of the many ships which by his skill and forethought, safely pass the new channel, bear his name and fame to the distant nations of the globe.

So much for the inside history of the jetties. As to that of their construction, Carting the three years preceding the date of the files.

ing the three years preceding the date of the fli-ling of the petition in his bankruptcy, kept such books or accounts as are usually kept by persons in the like business or as contain a reasonably sufficient record of his transactions during such three years, or has greatly increased his liabilities

That the bankrupt (whether he be a trader cu not) has brought on his bankruptcy by rash and hazardous speculations or unjustifiable extrava-gance in living, or has put any of his creditors to unnecessary expense by a frivolous or vexatious defense to any action to recover any debt or money due from him, or has committed any act by statute made a misdemeanor in case of bankruptcy and has not been prosecuted for the

After considering the provisions of the Lowell bill in some detail, the committee ommend the passage of a resolution to the effect "that a national bankrupt act for the distribution of insolvent estates and for the discouragement of insolvency. will promote the general well-being by confirming confidence in business transac tions and greatly increasing inter-State trade." This resolution was adopted and the further consideration of the report deferred. Much of the report of the committee seems to us to savor of hypercriticism The fact that the bill bears evidence of New England origin seems to be a fatal bar to its favorable consideration by such a body as the New York Chamber of Commerce. If the suspicion of provincialism which attaches to the action of the Chamber has no warrant in fact, the report of the committee is certainly very unfortunately worded, as it conveys that impression to the reader.

Judge Lowell's bill may not be a perfect scheme, but it is certainly the best which has been presented. If it is susceptible of judicious and profitable amendment, the way in which it could be improved might be pointed when, as a whole, it is a desirable measure first suggestion of the national banking sys- present time offers a remarkably favorable and the business interests of the country demand that such a law should be passed The Iron Age before Secretary Chase had Judge Lowell and his associates certainly tunity to influence the provision of the bill could be desired than that which Judge

assert and maintain such supervision and authority over any interoceanic canal across the Isthmus that connects North and South America as will protect our national interests," will be apt to throw a wet blanket over the enthusiasm which those interested have sought to create in the proposed canal of M. de Lesseps. If this means anything at all, it should have been said even more strongly. The gentlemen who propose to snap their fingers at the United States in this matter, may be foolish enough to risk their money in such a venture; but citizens of the United States who would not have their good sense called in question, will probably hesitate to share the enthusiasm which we have the doubtful authority of cable advices for supposing exists over M. de Lesseps and his scheme in Paris.

The Law of Conspiracy and Trades Unions.

A move has lately been made by the Waverly Coal and Coke Co., near Pittsburgh, that will bring before the courts of that section some of the vexed questions which relate to the rights of the officers of trades unions, and concerning which there is a decided difference of opinion between most employers and these officers. The issue has been raised by the arrest, at the instance of the Waverly Coal and Coke Co., of the secretary of the Miners' Union and one of its members for conspiracy.

This company are miners and shippers of coal. Having been troubled a good deal with strikes, they adopted the plan of requiring their miners to enter into a contract with them. The substance of the contract was that the wages of the men were to be determined by the price of coal, 60 days notice to be given before striking in case of a disagreement, and 10 per cent. of the wages earned to be retained as a forfeit in case of a violation of the terms of the agreement. While this agreement was in force between the company and its employees, the secretary of the Miners' Association and other of its members called a meeting and advised the men, so it is claimed, to demand an advance and strike unless it was conceded. Upon this the company had them arrested for conspiracy.

It is to be hoped that this case will be tried simply on its merits, and not be turned away by any side issue, but that it will decide how far unions and their officers may go and not violate law. It is more than possible that the fact that these men were working under a contract, and that the advice of the officers of the Miners' Union was in effect to violate a contract, may result in causing the issue to turn on this point, rather than on the broad question of the limits of interference. The miners themselves, as will be seen by the report of their meeting which we give in another place, are endeavoring to draw attention from the real point at issue, claiming that the arrest of their secretary is an attack upon trades unions, when it is in reality an attack upon the methods of a certain trades union. It certainly is possible, and at times very proper, to attack and denounce some of the methods adopted by these unions, without necessarily attacking the unions themselves. We know that this is not the general impression among unionists. They claim that their acts must be approved as a whole, or the objector is a sheep" and opposed to unionism. Under such circumstances unanimity is easily secured.

Naturally the miners, in their resolutions, ondemn the arrest and incarceration of their secretary, failing to see that the very question at issue is not only was their secre tary acting in accordance with his constitutional rights, but was he not interfering with both the constitutional and legal rights of others? This whole question of conspiracy in connection with labor organizations is a most important one, not simply in relation ought it to be ? There have been a number of convictions of unionists under the law as it is in Pennsylvania. In 1871 or 1872 a number of the officers and members of the Miners' and Laborers' Benevolent Association in Schuylkill County were arrested for conspiracy in connection with a strike, and convicted and imprisoned. A noted case later on was in connection with some strikes in the Clearfield region, when Siney and Parks, the leaders, were arrested and tried for conspiracy, and one of them convicted and imprisoned in the Western Penitentiary. A great many convictions were had under the old English law, of which our law is in most respects a copy. The English law has been materially altered, and it is a question worthy of serious consideration whether it would not be well to alter ours. It certainly seems an absurdity to make that a crime if done by ten or more persons which is not a crime if done by one, and yet this was the old English law. The terms of the English conspiracy act of August 13, 1875, seem much more reasonable. The third section of this act provides: "An agreement or combination of two or more persons to do, or procure to be done, any act in contemplation or furtherance of a trade dispute between employers and workmen, shall not be indictable as a conspiracy, if such act, committed by one person, would not be punishable as a

This certainly seems a more sensible law than some on our statute books, and if it be a fact that the secretary of the miners was President Hayes' reaffirmation of the guilty of no act which, if he had done 'right and duty of the United States to alone, would render him liable to punish.

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ment, then he should be held guiltless. The same act, however, defines what intimidation is. Two of the definitions are as follows:

2. Persistently follows such other person about

from place to place.

4. Watches or besets the house or other place where such other person resides, or works, or carries on business. or happens to be, or the approach to such a house or place.

This is part of a law which the workmen themselves assisted in passing, and there is no doubt, if it were in force in this country, that a body of men with banners and railroads, in regard to an independent conmusic, marching to "prevail" upon miners to stop work, would be regarded as "besetting" their fellows. It is to be hoped that time since, when the Baltimore and Ohio this question will be seriously and carefully discussed and settled before views get too decided to allow of calm discussion.

Congress and Inter-State Commerce.

Mr. Weaver's resolution, introduced in the House on Monday, covers pretty broad ground. It is :

Whereas grave abuses exist in the manager of commerce between the States, whereby the producing and shipping interests of the country are constantly compelled to pay the most unjust and exorbitant rates for transportation; there-

Resolved, That in the judgment of this House it steed by of the general government to at once overcise its constitutional rights to regulate commerce between the States by the passage of such laws and establishing such regulations as will secure to the whole people just and impartial rates for the transportation of both freight and

Before proceeding further in this matter Congress would do well to interpret the ar-

ticle of the Constitution to which reference is made, and see what powers it really confers. Considered by itself, it means pretty much anything those who favor government interference with railroads may demand ; considered in relation to the rights and powers of the several States, we imagine that it will be found to confer much less absolute powers than Congress may be disposed to assume. If States can regulate own borders, the right of Congress to regulate commerce between States amounts practically to very little. Mr. Weaver's resolution has small importance in any way, but there is a very important question involved in it which must, sooner or later, be answered. Fortunately, it is not true that "the producing and shipping interests of for transportation." On the contrary, the average cost per ton per mile of mov ing freight is steadily decreasing, and probably as rapidly as the best interests of the country demand. The money invested in railroads is as much entitled to interest as money invested in any other way, and on the average it has not earned it. If by any acts of the State or national governments it is deprived of the chance of earning interest, it will not seek investment in railthat offered by Mr. Weaver is what is known as discrimination. This is a disadvantage to local shippers; but if discrimination in favor of through freights is prevented by law, the rate per mile must be fixed above the present average on through freights to cover the greater proportionate cost of moving local freights. The annual tax on commerce would not be lessened; on the contrary, it would be increased. The discrimination is not against the local shipper, but in favor of the through shipper from competing points. The latter could be deprived of his present advantage over the former, but the former could not hope to have the advantage now enjoyed by the latter. Congress would do well to handle this matter delicately, or, better still, to leave it entirely alone. The railroad interest is sensitive to hostile legislation, and it that, so far as the passenger traffic is would require very little to chill the enthuwhich managers and the capital ists they represent are now striving to extend their facilities until they shall equal all the demands of commerce. Should construction and equipment languish, the iron trade would experience severe and protracted depression, many great industries would be paralyzed, the conjested condition of many of the great arteries of our commercial circulation would become chronic, and infinite mischief would result without benefit to anybody. The surest remedy for high transportation charges will be found in increased facilities and quickened competi-

As soon after the assembling of Congress as possible, Mr. Hurd, of Ohio, introduced a joint resolution relative to the tariff, the full text of which is given in the letter of our Washington correspondent. It declares that legislation on this important subject should be influenced by the following propositions :

That a tariff is a tax on imported goods which

ultimately paid by the consumer.

That a tariff for protection (so called) does
in most cases protect the interest it pretends

ges of workingmen.

That the protective tariff builds up one citi-at the expense of another.

That a protective tariff disturbs the primal yof trade which governs exchanges by supply 6. That a protective tariff has driven American

merce from the high seas.
That a protective tariff increases the proba-

ty of the crime of smuggling. We are not surprised that after the read- ducers of all classes are satisfied, and Presi-

necessary to adjourn for thirty minutes. hilarity which Mr. Hurd's resolution must have occasioned. Such broad humor as this is utterly subversive of good order and attention to serious business.

The New Through Line to the West,

A new feature of the old contest between the Pennsylvania and Baltimore and Ohio nection of the latter road with New York, has developed during the past week. Some decided to transfer its New York passenger business to the Bound Brook route, the Pennsylvania refused to allow it to use a piece of track about a mile and a half long in Philadelphia. This piece of road was built a number of years ago, under a charter by the terms of which the Pennsylvania, Reading, and Philadelphia, Wilmington and Baltimore roads were authorized to build a joint track of five miles, called "the Junction Road," in Philadelphia. After building 31/2 miles, the Philadelphia, Wilmington and Baltimore lost interest in the Junction, and the Pennsylvania road built the remaining mile and a half. Instead of having the two other roads pay their share, the Pennsylvania road paid all the expenses, and thus claimed ownership of the road. They have steadily refused to let the Baltimore and Ohio Railroad Company get a through connection with New York. The matter has long been in litigation, but has at last been decided against the Pennsylvania Company. The Philadelphia, Wilmington and Baltimore and the Reading roads were permitted to take one-third ownership of the Junction by paying one third of the cost, which they imnew through route was opened between New York and the West.

This at once precipitated a freight war It is understood that the Baltimore and Ohio transportation and commerce within their had a contract for freight with the Pennsylvania road which expired the 1st of January, 1881, but the latter road took advantage of the opening of the new passenger route to refuse to receive freight from the Baltimore and Ohio, and on the morning of the 2d the drayman taking freight to the offices of the Pennsylvania Railroad found notices that no country are constantly compelled to timore and Ohio. It was claimed, on the " pay the most unjust and exorbitant rates | part of the Pennsylvania Railroad, that the course taken was an act of self preservation, because the Baltimore and Ohio might take away its freight traffic at any time, and there was no use of allowing the Baltimore and Ohio to make a convenience of the Pennsylvania road any longer.

General Manager Harris, of the Bound Brook road, as soon as he heard of the lockout, telegraphed to Vice-President Garrett. of the Baltimore and Ohio Railroad, offering the use of the Bound Brook road for carryroad building and equipment. What is ing freight as well as passengers. The offer really aimed at in all such resolutions as was promptly accepted. Before four o'clock the agent in New York had posters printed giving notice that the Baltimore and Ohio Railroad was prepared to receive, at the depot of the Central Railroad of New Jersey, all the merchandise destined for the Baltimore and Ohio Railroad and its various connections, including the Continental line, to be forwarded over the new line by way of the Central Railroad of New Jersey and the Bound Brook route.

It is difficult to explain the course of the Pennsylvania road in this matter on any hypothesis or information with which the public are acquainted. The reason given is no reason. In railway circles it is believed that a freight war is imminent. In the meantime the Baltimore and Ohio are the gainers. They have a through connection with New York via Washington, and there is no doubt concerned, very many will take advantage of this opportunity to visit the capitol in their journey between the East and West. It is difficult to see, however, what advantage the new line will be to shippers of through freight. From local points on the Baltimore and Ohio it will be somewhat of an advantage, but how a shipper of freight for Chicago to New York can gain anything by sending his freight via Baitimore, it will be difficult to say. It is a rival line, and as competition is the life of trade, it may be beneficial in this way.

The President's message and accompany ng documents are very satisfactory State papers this year. A great many people look forward to their publication with no little impatience, and are disappointed when they contain nothing startling or sensational. No doubt the President would be glad to gratify public expectation in this matter; but the fact that he cannot do so is certainly a cause for congratulation. A more satisfactory showing of domestic affairs and foreign relations could not be made than that which is spread before the country in what may be called the annual report of the Administra-That a protective tariff does not increase the tion. Earnest partisans may feel chagrined and disappointed at the fact that for four years the country has been governed in the interest of the peorle rather than of party, and, in the light of a broad, practical common sense, rather than in accordance with the decisions of party cacuses; but the solid men of the nation—the manufacturers, merchants, capitalists and industrious pro-

We should have thought it would have taken at least an hour for the subsidence of the hilarity which Mr. Hurd's resolution must which in a neculiar degree, is "a lively which in a neculiar degree, is "a lively which in a neculiar degree, is "a lively society and establishing the fact that it is which, in a peculiar degree, is "a lively sense of favors to come."

> At Eston the basic process is declared to be a success commercially as well as technically. Judging from the data submitted by the general manager of the Cleveland Steel Works, the mode of working phosphoric Cleveland pig is not definitely settled. Our English correspondent notes one fact. announced by accident during the meeting of the Cleveland engineers, but not given in the published reports. It appears that some hematite pig is added, with the avowed purpose of counteracting the disadvantageous influence of the afterblow. Just how this is intend ed to produce this effect is not stated No specific information is given concerning the operating expenses of the new stee works; but aside from the fact that Mr E. Windsor Richards emphatically announ ces his success, there are other circum stances which prove beyond doubt that the great firm of Bolckow, Vaughan & Co. with whom he is connected, are convinced of the present value and future prospects of the basic process. They have sold two of the steamers used by them to carry pare ores from Bilbao, and have, besides, put three blast furnaces on local ores, thus reducing their output of Bessemer pig and increasing that of phosphoric iron fit only for the new process. These facts are looked upon as significant, and are considered as furnishing sufficiently convincing evidence of the final success of Mr. Thomas and his

It will be a matter of surprise to learn that the tonnage of the vessels of the port mediately did, and the Baltimore and Ohio of Pittsburgh is stated to be greater than at once got its through connection, and a that of any other port of the country. According to a report made at the instance of the Census Office, the list is as follows:

> Vessels. Vessels.
>
> Passenger and towboais.
>
> Barges (model, mainly).
>
> Oal flats, measuring 90 by 15 by 5 feet, 800
>
> in all, averaging 75 tons each.
>
> Oal barges, measuring 130 by 24 by 7%
>
> feet, 1500 in all, averaging 200 tons each.
>
> Tool boats, measuring 170 by 95 by 5% feet, 1000 in all, averaging 335 tons each.

Registered tonnage, total 817,87 Of this fleet, 131 are steamboats, all but about a dozen being towboats. The number more freight would be received for the Bal- of barges, flats and coal boats and their registered tonnage gives some idea of the extent of the coal trade of the rivers, though even this does not indicate the actual carrying capacity of these craft, it being considerably in excess of the registered tonnage.

> The letter of Mr. J. B. Gowen to the stockholders of the Reading railroad must, in some of its features, be a genuine surprise to many outsiders who do not know much about railway management. Here is a railroad with vast interests, with capital and bonds counting up into the millions, and yet, with the exception of one year, 35,000 shares have been more than a clear majority of all the stock voted at the annual elections of the past ten years. It is scarcely credible that men in the position of these shareholders should be so indifferent to their own interests; and if to this indifference may be

NEW PUBLICATIONS:

Handbook of the Lake Eric Iron Co. Published by the Lake Eric Iron Co., Cleveland, Ohio. Among the handbooks and collections of reference tables published by some of our larger producers of and dealers in iron and steel, that issued by the Lake Erie Iron Company takes a prominent rank, on ac count of the careful selection and convenient presentation of much valuable matter. sides the usual full price lists, there are many tables of weights of round, square and flat iron, bar steel, angle iron, sheets plates, I beams, channel bars, &c, sheet lead and copper, nails, bolts, screws, nuts, washers, &c. Besides many additional ref-rence tables, scraps of useful information, washers, &c &c., the book, which is well bound, contains nearly 50 maps of the various States.

United States Commission of Fish and Fish ERES, Fart VI. Report of the Commissione for 1878. Washington, D. C.

Judging from the bulk of the volume before us, the literary labors of the fish commission are purused with extraordinary diligence. It needs hardly more than a glance at its contents to convince the reader that the public funds are expended in a very good cause, and that those in charge of the work—notably, the efficient chief of the commission, Prof. Spencer F. Baird—are promoting our piscicultural interests with enthusiasn and marked success. The report proper, summarizing the results of the labors of all connected with the commis a little over 100 pages long, but there ar lengthy and elaborate appendixes embracing translations of reports of Norwegian and German experts, detailed scientific monographs, like that by Mr. Oscar Harger on the marine isopoda of the New England waters, and finally specific reports of work and progress for the year of the establish-ments under control of the commission, together with miscellaneous papers on subjects of interest to the pisciculturist, to whom the volume will prove a mine of know.edge.

PROCEEDINGS OF THE ENGINEERS' CLUB OF PHILA DELPHIA. Vol. II, No. 1.

The publication of the first installment o

expiration of his term with the respect of has taken root firmly and promises to enjoy equal to the requirements has passed, and he growing value of the contributions to its proceedings is evidence of an increasing interest. The club has commenced to take action in important matters, and is gaining recognition not alone in its native city, but beyond it is fast making friends. The first number of the new volume has valuable additions to current technical literature. We would notably refer to Mr. R. Herring's "Future Sewer Requirements of Philadelphia," Mr. E. Parrish's "Lighthouse System of the Delaware River," and Mr. D. Townsend's "Quantitative Determination of Combined Carbon in Cast Iron and Steel." R. Herring's

WASHINGTON NOTES.

A Tariff for Revenue Only .- The Wood Refunding Bill.

(From Our Own Correspondent.)

WASHINGTON, D. C., December 8, 1880. At an informal gathering of Democratic embers of both the Senate and House of Representatives, it was generally agreed that some aggressive action must be taken in regard to the tariff, not so much with to current legislation, as that would ardly be feasible at a short session, as to the Democratic leaders into line on the subject. Since the assembling of Congress and the opportunity offered for conterence, the Democrats have sensibly rallied; and, while admitting that industrial and tariff questions had much to do with their defeat, they charge the most direct consequences in that line to the demoralization caused in the ranks of the party by the manner in which the question was pre-sented, and the impossibility of rallying the party in time to be of any service at the Carlisle, Tucker and other advo ates of tariff for revenue only and free trade generally have again come to the front. Tucker will insist upon some action upon his hoop iron bill, and the advocates of a lower rate on Bessemer rails are also again agitating that matter. There is no probability, however, that anything will be done with either.
As a result of a comparison of notes

among the members of his own party, Mr. Hurd, of Ohio, prepared a joint resolution relating to the tariff, which he introduced on the first day of the session, had it read twice, and referred to the Committee on Ways and Means. Mr. Hurd says that this bill represents the Democratic doctrine on this subject, and is the interpretation of that ortion of the Democratic Presidential platorm relating to tariff for revenue only The following is the full text of Mr. Hurd's bill, defining the Democratic idea of the

principles which should regulate the tariff: Resolved by the Senate and House of Rep-resentatives of the United States of America on Congress assembled, That any tariff levied by the Congress should be regulated by the

ollowing principles:

1. A tariff is a tax upon imported goods, which is ultimately paid by the consumer, as the importer always adds to the selling price the amount of duty paid; being a tax paid by the citizen, it ought, therefore, not to be imposed except to provide revenue for the government, and only that tariff ought to be levied which will with the least burden to the people provide the necessary revenue.

2. A tariff for protection, so-called, does ot in most cases protect the interest it pretends to foster; while at first it may bring large profits to those engaged in the manufacturing which is assumed to be protected, traced in part the situation of the road and the condition of the stock, there can be little sympathy felt by the public for those who suffer through it.

facturing which is assumed to be protected, it soon, by these very profits, invites many persons into the business, from which result overproduction, overstocking of the market, low prices, reduction of the hours of labor, shutting down, at least temporarily, of the contribution of the proprietor. workshops, embarrassment to the proprietor, and, in many instances, final bankruptcy, in which the large profits made at first are swallowed up, and the large wages at first paid workingmen, if saved up at all, are

prevailed; second, in Germany, where there

4. A protective tariff builds up one citizen the manufacturer to charge must be paid by another citizen. Such a discrimination against one and in favor of another a government ought not to make. A protective and a more economical system of refining tariff which protects unequally works injus-A protective tariff which protects all qually is superfluous, for, if all are equally protected, they are in precisely the ituation as though they had received no

5. A protective tariff disturbs the opera-tion of the primal law of trade, which gov-erns all exchanges by the supply and demand of the articles to be exchanged, and openly and shamelessly violates the principle that every man has a right, subject only to gov-ernmental necessities, to buy where he can buy the cheapest and sell where he can get

The present protective tariff has driven

mg of this resolution the house found it dent Hayes will retire to private life at the in the history of the club. It proves that it navy it is impossible to prevent, and by the The pumpa are worked by steam.

commission of which dishonest men are

can manufacturer from the markets of the world. Mexico and South America are supplied with their manufactured goods by England. Our best interests demand that the protective barrier our legislation has erected shall be broken down, that American skill and enterprise may have an opportunity to compete with foreign manufactures overywhere. Our manufactures need more an increase of market, by which foreign capital can be brought into this country, than protective legislation, which takes money from one American pocket to put it into another

9. To the end that the present tariff shall become one for revenue only, the following changes should be made: First, on all dutiable articles producing little or no revenue to the government the duty should be returned to a revenue basis, or they should be placed upon the free list; second, the duty upon tea and coffee should be restored, and to the extent that this duty produces revenue to the government, the duty should be re-moved from salt and clothing and other articles indispensably necessary in domestic

The specious reasoning involved in these nine propositions at first seemed to en-courage the Democratic members and disoncert the Republicans, some of the le ardent tariff men among the latter upon the first flash imagining that there was more on that side of the question than they had imagined. Upon reflection, however, both sides were more chary of their opinions.
The entire resolution, it is admitted, is drawn with extreme adroitness, and calcu lated to entrap the unthinking. At the meeting of the Committee on Ways and Means, on Tuesday, the resolution was in-formally talked over, and it was discovered that the free-trade element of the committee even was not disposed to rush into the question until they took their bearing mong their friends generally. The ta sophistical and enunciating principles which they would have no hesitancy in combatting before the people. Whether the joint resolution will ever be referred by the committee to the House in its present shape, or in any other, will be determined after there has been a general party caucus and meeting of the advisory committee. If it should come before the House, tariff and free trade literature for future campaign thunder will flood the country, as about every mem-ber of each House who can make a speech will fire one off.

The discussion in the Ways and Means Committee on Tuesday of the Wood refund ing bill, indicates a disposition to take advantage of the favorable condition of the noney market for placing a 3 per cent. bond o supplant the 5's and 6's which mature in There was much discussion of the length of time for the proposed bonds to run, varying from 20 to 50 years. Judge Kelley notified the committee that he was in favor of the proposition of the Secretary Treasury for a 3-65 bond, and would make an amendment to that effect in the house

Refining Petroleum Without Heat.

A new process for the refining of petro eum is being tested, and is expected to effect a great saving over the one now in By the old process, the refined artiele, at a fire test of 110 degrees, costs 61/2 cents per gallon, the process involving a coss of from 30 to 65 per cent. In bringing this grade of oil to a test of 150 degrees, it loses 30 per cent. in the process of distillation; to raise it to 175 degrees, it loses 45 per cent., and to 185 degrees, 65 per cent. By the new patent process the oil is treated without heat, and, it is claimed, loses nothing. In fact, in some oils there is said to be a positive gain in weight. Oil at 110 degrees, that costs 6½ cents per gallon, on being raised to a fire test of 150, is worth 1314 cents per gallon; to 175, from 15 to 17 cents per gallon, and if raised to 185 depaid workingmen, if saved up at all, are conts per gallon, and if raised to 185 deconsumed in waiting for a business revival, which, if it does come, will inevitably be attended by the same consequences.

3. A protective tariff does not increase the wages of workingmen, as demonstrated by the following facts: First, in England, since the policy of free trade has been adopted, the wages of laborers have been higher than when the system of protection prevailed: second, in Germany, where there loses nothing in the manipulation—the profit loses nothing in the manipulation-the profit s a protective tariff, the wages are lower han in countries without tariff, or with a which the fire test is raised. In the process tariff for revenue only; and, third, the averthe oil is devolorized, and at the same time age wages of the American laborer since the illuminating quality is improved so that adoption of the present tariff have, for the ten years last past, been less (allowing for the difference in the currency) than under a revenue tariff for the ten years proceding for it shall be realized, must eventually be a great boon to producers. So long as the yield continues in excess of the consumpat the expense of another, for every dollar tion, and prices are unrenumerative to the of additional price the protection enables producers, it matters little that the process of refining is wasteful and extravagant; but the time may be not very remote when the consumption will exceed the production, will then be a matter of importance to all concerned.

> The Great Crane at Woolwich .- The largest crane in the world is nearing com-pletion at the Woolwich Arsenal. Two ousand tons of iron are employed in its construction, and it covers a quarter of an Four years have been occupied in g the monster machine together. putting the monster machine together. When finished it is expected that it will be able to lift four 100-ton guns, and one man can easily work it.

the American carrying trade from the high similar to that of Pennsylvania has lately sens, by enhancing the price of the materials which enter into the construction of Abruzzi, and also at Riva-Nazzano, near ressels so that American shipbuilders can-not compete with foreigners engaged in the that after a few more months' digging the oil springs themselves will be found. the second volume of the proceedings of that vigorous and promising body, the Engineers' bilities of the crime of snuggling, which, Club of Philadelphia, is an important event with our extensive water frontier and weak on the work by an Italo-Brench company.

Petroleum Development in Russia.

The success of American capitalists in carrying on the petroleum oil business in its various departments has encouraged the Russians to believe that their oil deposits on the shores of the Caspian Sea, near Baku, can be turned to profitable account. There is now some intention of laying a pipe line from Baku, on the Caspian Sea, to Batoum, on the Black Sea, a distance of 593 miles. The object of this improvement would be to give the well-owners and refiners at the former place a change to get their merformer place a chance to get their mer-chandise to market. As they are now situated they are cut off from all means of direct transportation, for the railroad be-tween the two seas named does not extend much further inland than Tiflis, and though the Poti-Tiflis Company is building its line eastward to Baku, it will be two years before it will be completed, and even then the rates of freight may be more than the oil men can well afford to pay. The present route of trade is up the Caspian Sea to Astrakhan, and from there up the Volga River, but as the oil has to be transhipped at the mouth of the river, and even then is available for use only in Eastern Russia, the trade is by no means as large as it might be. Russian merchants engaged in might be. Russian merchants engaged in the business assert that if there could be a pipe line constructed to Batoum, the entire southern part of Europe, and possibly the western parts, would be supplied with oil from the Baku district, as it could be landed at Trieste, Genoa, Marseilles and even at Antwerp and Hamburg, at a less price per gallon than is now paid for the American article. The truth of this assertion can only be determined by actual experience, though it cannot be denied that the Baku district is exceedingly rich in petroleum. The wells there have never been petroleum. The wells there have never been properly developed, and, until six or eight properly developed, and, tath six or eight years ago, were simply excavations in the ground, dug out with shovels to a depth of from 10 to 30 feet, in which the surface oil was allowed to collect. At the present time the average depth of the wells is less than 300 feet, and with these the yield is than 300 feet, and with these the yield is much too large for the existing market, for last year, although seventy million gallons were shipped away from Baku, it is estimated that almost as much more was allowed to run to waste. When the wells are dug to a great depth, and facilities have been provided for shipping at a low cost the refined product, it is not impossible that Baku will outdo the richest oil regions in this country. this country.

The following statements are a fair illus tration of the growth and subsequent sud-den decline of the Prussian railways. The number of locomotives which were put on the road and the quantities of rails used

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28 -3.	0	0	٥	٥	٥		0	۰	0									0	. ,					٥	۵				900	3,500,000
1874.	0							٥	0	0	0	0 1	,	,		0	٠	0		0 0				0		٥	0	,	1038	8,300,000
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x876.																													376	9,300,000
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Special Notices.

Second-Hand and New Machinists' Tools.

December 8, 1880.

One Lamson, Goodnow & Co. 2-spindle Profiling Ma-

One Engine Lathe, 90 in. x 20 ft. Ames, new 30 in. s. x 12 ft. Ames, new. 28 in. s. x 27 ft. New, for shafting. One ' 24 in. x 12 ft. Ames, new. 24 in. x 10 ft. " "
20 in. x 8 ft. Ames, new.
16 in. s. x 8 ft. 'Ames, new.
16 in. x 5 ft. Ames, new. One Fox Lathe.

One, No. 3 Screw Machine. P. & W. Mix 9 in. "Hewes & Phillips.
One 15 in. stroke Shapers. Hendey Mach. Co., new.

One 24 in. x c ft. Planer. Ames. Cue 2, in. x cft. "Moore & Wyman.

Two 36 in. Drills, bk. geared and self-feed. L.W. Pond.
One 35 in. Drill, bk. geared and self-feed. New Haven,
One 34 in. "Bk. Geared.
Six ze in. "Prentice, new.

One 5 Spindle Horizontal Drilling Machine. One 5 Spindle Horizontal Drill.

One No. 4 Wilder Punch Presses. New. Geared.
One No. 5 "Shear Geared." One No. 5

Stephens & Boker Vises, At order, 3½ and 4 in.

Belting, Shafting, Pulleys and Miscellaneous Machin

E. P. BULLARD, 14 Dey St., New York

GENERAL EASTERN AGENT FOR Akron Iron Co.'s Hot Polished Shafting.

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HARDWARE TO EXCHANGE, in lots to suit for one-third eash, two-thirds good unincumbered real estate. All wholesale stock and in prime order. A full assortment of goods given in every exchange. Address HARDWARE,

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A complete's es of Shen and He av Hardware beated in a five town in Central Ohio. Established 1856. "Good Payments." For particulars address

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Lims, Ohio.

Lims, Ohio.

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Large Stock of New and Second-Hand

MACHINERY.

Three pair Scales, weigh to 3500 lbs. Fairbanks. One Horizontal Corliss Engine, 208 h. p. One Delamater Sugar-house Engine, 208 h. p. One Delamater Sugar-house Engine, 208 h. p. One Horizontal Engine, 11 ln. x 18 ln., Whitehall & Hampsen (15 ln. ln. lferty. One Horizontal Engine, 15 ln. ln. Todd & Raf-One Horiz' Engine, 9 ln. x 12 in. Erie Iron Works. Five Horisontal Engines, 8 ln. x 12 in. J. & R. J. Four Horizontal Engines, 8 ln. x 12 in. J. & R. J. Four Horizontal Engine, 8 ln. x 12 in. [Gray. One Horizontal Engine, 5 horse nower Two Horizontal Return Tub. Boilers, 10 h. p. each. Two Hor. Tub. Boilers, 5 ft. x 13/2 ft., 1002 l/4 ls. tubes. One Hor. Tub.lar Boiler, 5 ft. x 15 ft., 8 3 ln. tubes. Two Hor. Tub. Boilers, 6 ft. x 14 ft., 50 4 ln. tubes. Two Hor. Tub. Boilers, 6 ft. x 14 ft., 50 4 ln. tubes. Three Hor. Tub. Boilers, 6 ft. x 13 ft., 34 ln. tubes.

MACHINISTS' TOOLS.

Hydraulic Press, 30-in. ram, in perfect order. Lathe, 16 in.x7 ft. bed.

Hydraulic Frees, 10 Lathe, 16 in.x, ft. bed.
Planer, 26 in.x, ft. bed.
Planer, 36 in.x, ft. bed.
Crank Planers, 18 in.x 15 t.
New Haven Drill Will bore in center of 60 in.
New Haven Drill. Will bore in center of 30 in.
Ensley Drills.
Vertical Boring Mill, bore from 26 to 20 inches.
Turn Table and Boring Mill, 11 feet between
Travis Boring Mill.
Morrill Compressed Air Hammer, Hotchkiss
Upright Drill, to the center of 61 in. [Patent.]

One Upright Driff, to the center of 61 in. [Patent One in it is in it is in it is in. Elghteen Drilling Machines.

Ten Bench Lathes.
One Bogardus Mill. No. 5.
One Bogardus Mill. No. 2.
One Roof Blower. No. 1.
One Sturtevant Blower. No. 2.
One Sturtevant Blower. No. 2.
One Sturtevant Blower. No. 2.
One Dudgeon Beam Funch.
One Dudgeon Beam Funch.
One Hand Punch. Pope's patent.
Three Vacuum Tanks, 6 ft.x12 ft.
One hundred Vises.
Five Portable Forges.
Colton Drawing Machine.
One Knowles Special Pump, No. 3.
One Woodward Pump, No. 3.
Six Hardick Pumps, from No. 4. New.
One Woodward Pump, No. 3.
Two Bliss & Williams Presses.
Two Bliss & Williams Presses.
Five smaller.
A full line of Woodward Steam and Fire Pumps, One hand-power Paper Cutter.

J. GRAY'S MACHINERY DEPOT,

37 Dey Street, New York, U. S. A. ON HAND AND FOR SALE.

FOR SALE.

The Best Retail Hardware Stock and Stand in Kansas City.

Is doing a good business.

PRESENT STOCK ABOUT \$20,000.

Such an opportunity as this, for a couple of active, hard-working young men, with \$20,000 or \$30,000 capital, is seldom offered. Upon such goods as have advanced extravagantly, we will make such discounts from the present market rates that no one need hesitate about buying the stock from fear of a decline in prices. Address.

J. E. FORBES & CO., Kansas City, Mo.

For Sale.

One pair CHILL ROLLS, 25 inches diameter, o inches long; necks, 16 inches diameter, 13/2 oches long; wabbler, 14 inches diameter, 7/2 nches long.

Che pair PINIONS, 25 inches diameter, 30 inches
o outside of shrouds; necks and wabblers same

as on chill rolls.
Six COUPLING BOXES, for above rolls and

one POPPET VALVE ENGINE, 20-inch bore, foot stroke, with cast-iron fly-wheel in eight sec-16 feet diameter; rim of wheel, 11 x 12 in.

SUPERINTENDENT WANTED.

A live, practical, pushing, first-class man, to take the entire superintendence of manufacturing in a large Spring and Axle Works. Must be thor oughly competent and give best reference. Ad-SPRINGS AND AXLES. Office of The Iron Age, 83 Reade St., N. Y.

For Sale. Cold Blast Charcoal Furnace. First-class in every respect and ready for imme-late blast. Stone stack, ample water power; coc cords seasoned wood on hand. Charcoal can e had at 4% cents per bushel at furnace. For

he had at 4% cense per further particulars, address ROBERT W. MONROE. Kingwood, W. Va.

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HARDWARE.-The controlling interest or the whole of a Jobbing Hardware House, already es-tablished and doing a profitable business; located in one of the large Western cities. For further particulars, address C. A., Office of The Iron Age, 83 Reade St., New York.

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Wood & Light THE HARDWARE BOARD OF TRADE Machine Co. **Patterns**

OF THE FOLLOWING TOOLS ARE FOR SALE AT VERY LOW PRICES :

Engine Lathes from 24 inch to 100 inch swing.
Driving Wheel Lathes, Double Heads, 34 inch swing;
and Wheel Quartering Attachment.
Patent Shatching Lathes, 20 inch, 24 inch and 28 inch swing.
Pulley Lathes, 35 inch and 48 inch swing.
Chucking and Boring Lathe, 20 inch, 24 inch and 28 inch swing.
Upright Drills, 60 inch swing.
Traverse Drills, 28 inch swing.
Traverse Drills, 28 inch swing.
Planers, to plane from 24 inches square to 72 inches square.
Slotting Machine, 12 inch stroke, 52 inch swing.
Milling Machine, two Spindles.
Profiling Machine, two Spindles.
Boiler Plate Planer.
Quartering Machine for Locomotive Wheels.
Cutting off and Centering Machine, 1 to 5 inch.
The above Patterns are for sale in one lot or

The above Patterns are for sale in one lot or separately, and finished work from these Patterns will be taken in payment, if desired.

The Geo. Place Machinery Agency, 121 Chambers and 103 Reade Sts.,

House to Exchange for Hardware.

The owner being permanently engaged in business at the West, will sell his dwelling in Elizabeth, N. J., cheap for cash or in exchange for Hardware. The house is near business centers, a pleasant walk of three minutes from Depot. The lot is 57 feet front, shaded by four handsome trees; in the rear are choice fruit trees and grape vines. Has a good well and elstern, in addition to aqueduct water. The rooms in the house and all modern improvements and conveniences. A very desirable home for anyone doing business in New York. Letters addressed to "EXCHANGE,"

Office of The Iron Age. 3: Reade St. New York.

Office of The Iron Age, 83 Reade St., New York will receive the personal attention of the owner agent, who will be in New York about Dec. 20th.

For Sale.

ON HAND AND FOR SALE.

Horizontal Boiler, 42 in. x 10 ft., 28 4-in. tubes, 36 shell, 7-16 heads.

Horizontal Boiler, 42 in. x 10 ft., 90 2-in. tubes, 5-r6 shell, 36 heads.

Vertical Boilers, with Baces, Grates and Fixtures:
42 in. x 7 ft., 90 2-in. tubes, shell and fire-box 5-r6 in. heads 5-r6 in. New.
30 in. x 6 ft., 80 2-in. tubes, shell and fire-box 5-r6 in. heads 5-r6 in. New.
30 in. x 6 ft., 52 2-in. tubes, shell and fire-box 5-r6 in. heads 5-r6 in. New.
30 in. x 6 ft., 55 2-in. tubes, shell and fire-box 5-r6 in. heads 5-r6 in. Second hand.

15½ x 36 Horizontal Engine, 9 ft. x 18 in. band wheel. Jacob Naylor.

12 x 24 Horizontal Engine, 9 ft. x 18 in. band wheel. Jacob Naylor.

13 x 24 Horizontal Engine, segment fly wheel 43-so lbs James Moore.

15 x 24 Horizontal Engine, band wheel 24 in. x 12 in.
12 x 12 Vertical Engine, band wheel 24 in. x 12 in.
26 in North Third St., Philadelphia.

Europe.

Matheson & Grant's

Address is

32 Walbrook, London, England.

Engineers and Commission Agents for all busi ess relating to engineering and metals in Europe Telegraph address.

MATHESON, WALBROOK, LONDON.

\$40,000 to \$50,000

Wanted on lands and works costing \$200,000, con nected with metal trade, and now in profitable operation. A desirable position may be possible in connection therewith.

H. R. C., Box 2333, New York City Post Office.

OPEN-HEARTH STEEL.—A gentleman having six years' experience in one of the leading open-hearth works of this country will be open for an engagement January 1, 1881. Is competent to design superinted construction and manage to design, superintend construction and manage works when completed. Address OPEN-HEARTH STEEL, Office of *The Iron Age*, 83 Reade St., New York.

CRUCIBLE CAST STEEL.

Wanted, by an old-established Sheffield firm, a Wanted, by an out-established Shallow and ref-responsible agent with good connections and ref-erences, who would buy Tool Steel, &c., for his own account. Apply BOX 40, Fost Office, Sheffield, England.

For Sale.

LARGE SLOTTER, 6 ft, between Columns, 4-ft. Table, stroke 18 in., end, cross and circular move ments. A heavy, well-built tool; in first-rate or der: will be sold low. Photo. on application. Also, Tools of Machine Shop and complete Foundry outfit: Tangent Screw Ladles, Cranes, Mac-

kenzie Cupolas, two Sturtevant Blowers.

Circulars on application. A. G. BROOKS & WINEBRENER,

261 N. Third street. Philadelphia.

WANTED—An additional line of Hardware or specialties to sell on commission, by a gentleman who travels most of the time among the Western trade. Best of reference. Address Office of The Iron Age, 83 Reade St., N. Y.

A HARDWARE SALESMAN, with an extensive acquaintance and trade in the West, is open for engagement from January 1. Satisfactory reference from present employer Address BOX 33,

Office of The Iron Age, 83 Reade St., New York.

Sanderson Bros. Steel Co.

a limited number of shares for sale by
EDWARD FRITH & SON,
24 Pearl street, New York,
See our advertisement, page 10.

Special Notices.

ROOMS OF

Incorporated A. D. 1877.

Nos. 4 and 6 Warren St., New York.

To the Trade and Public:

We are compiling, preparatory to issuing in January, 1881, a limited number of strongly bound books, to contain the names and financial standing as well as credit ratings; of some Fifty Thousaid dealirs in Haritward, Cuitlery, Guns, Tinware and Stoves, Metals, Iron, Foundries, Machinery of all kinds (including Sewing Machines), Iron and Metal

Pipe, Brass Fitting, Plumbers and Dealers in Plumbers' Supplies, and other trades kindred to these throughout the United States. A large expenditure of money and the very best means have been used to obtain reliable information for the work, an I those desiring it can depend upon the information being fresh and largely drawn from those selling the firms, corporations and individuals rated, and the information is as reliable as it is possible to obtain for such a work For Wholesale Dealers and Manufacturers it is

the most desirable work of the kind, as it is prethe most desirable work of the kind, as it is pre-pared with great care, and should be consulted where extended credits are asked. All are not safe for credit because apparently prosperous, and detailed information given at the office will largely aid in ferming correct judgments. The Buard of Directors of this company have blaced a llimit to the number of these books to be issued, and under no circumstances will orders placed beyond that number be filled.

placed beyond that number be filled.

placed beyond that number be filled.

The subscription price to the beok is placed at THIRTY DOLLARS. All orders must be accompanied by draft on New York for the amount.

We respectfully ask all who desire a copy of this book to forward their orders at once, as they will be entered and filled in the order received.

THE HARDWARE BOARD OF TRADE, Limited.

By JAS. H. GOLDEY, Actuary: FOR SALE.

A Large Lot of

CHROME STEEL Octagon, Square and Round, at less than

market rates.

GLOBE HARDWARE CO., 53 Beekman Street, New York.

An Experienced Traveler who visits the Hardware Trade throughout the West, would like to handle a first-class specialty that will pay a hiberal commission. High reference available if required.

St. Denis Hotel, Chicago.

Wanted.

A Plate Mill Shearman.

Box 893, Pittsburgh, Pa. Wanted.

An experienced Hardware Man desires to act as buyer for country hardware merchants. Best references furnished. Address "HARDWARE,"

Office of The Iron Age, 83 Reade St., New York.

WANTED. A man competent to take charge of the Metal Working Department of a large manufactory. He must be energetic, quick and inventive, as well as practically familiar with the best methods of Fress and Die work, particularly in Brass. Answer, stating qualifications in detail, as well as name and references, which will be received in confidence, to Cffice of The Iron Age, 83 Reade St., New York,

WANTED. A PARTNER to start the manufacture of a Patent Hydrant and Fire Plug The Hydrant, which is one of the best, can be made for about one-half the cost of any hydrant in the market. It is a one-stem hydrant, is self-closing and non-freezing, and can be made to run out either at the top or side. Will sell State rights or let to some good party on royalty. Address THOS, GIBBONS, No. 1708 Franklin Ave., St., Louis, Mo.

WANTED.

A good line to sall the Wholesale Hardware Trade, by a Traveler of experience, who now has a small line that necessitates his viviting all the important points in the United Stafes and Canada. Office of The Iron Age, 83 Reade St., New York.

Wanted.

One PUNCH AND SHEARS COMBINED, to punch 1-inch hole in 1/2-inch iron in the center of 30 inch. Address, giving full particulars, with price net cash, NATIONAL TUBE WORKS CO.,

McKeesport, Pa. Wanted.

TO PURCHASE 8 or 10 NAIL MACHINES. Please address, stating size, condition and price, NAILER.

Care of Jos. D. Weeks Office of The Iron Age, 77 4th Ave., Pittsburgh, Pa.

Wanted.

Special Notices.

ONE MILLION **ELEY BROS.**'

Genuine First Quality

BLUE CENTRAL FIRE

CARTRIDGE CASES

NO. 12 GAUGE.

THE BEST PAPER SHELL IN THE MARKET. For sale at a great bargain.

ALFRED FIELD & CO.,

93 Chambers St., New York.

To Railroad Engineers, Importers and Others.

DAVID OWEN,

Inspector of Steel and Iron Rails, Merthyr Tydfil, England.

Undertakes the inspection of Steel and Iron Rails, Permanent Way Materials, &c., &c., in England, Belgium and Germany. Thoroughly practical, of many years' experience. Can give very best of references from chief railroad engineers, merchants and others who have employed me to inspect their railroad materials during manufacture and delivery for the last to years. Correspondence solicited. Instructions by mail or cable punctually attended to.

THOSE WISHING TO BUY OR HAVE FOR SALE SECOND-HAND

PRESSES or DROP HAMMERS

will please communicate with N. C. STILES.

The Sherman Process Co.

Middletown, Conn.

9 Pemberton Square, Boston, Mass., ssue Licenses to use the Process for the Manufacture of Iron and Steel In the Bessemer Converter, Crucible, Siemens-Martin, Puddling, Blast and Cupola Furnaces.

The use of this Process improves the quality of the product, saves fuel and labor, and does not re-quire any change in furnace or manner of working See page 17 of The Iron Age of Oct. 15th, 1877.

FACTORY Or requisite buildings will be erected on plot 75x100 feet, on East Eighth Street, near the East River, and leased for a term of, say, ten years. Other New York City manufacturing property

Ior sale or to lease.

WM. J. FRYER, Js., Ætna Iron Works,

104 Goerck Street, New York. For Sale.

Stock of hardware, stoves and implements, and tore furniture, in one of the best towns in Kansas. HARDWARE,

Box 366, Salina, Kansas

FOR SALE. A works completely equipped for the manufac

ture of Carriage Axles. Is well located in relation to coal and iron, also very accessible to market. E. P. BULLARD, 14 Dey St.. New York.

FOR SALE, Job Lots and Bankrupt Stocks Hardware.

Great bargains offered to the trade.

A. W. WHEELER.

141 Lake St., Chicago, Ill. For Sale.

One of two stocks of Hardware, Stoves, Tinware and Agricultural Implements, situated one in Winfield, Kansas, and one in Douglass, Kansas, both doing a good business; stock about \$5000 each; good reasons for selling. None but cash buyers need address

D. 8, ROSE,
Winfield, Kansas.

ENGINE AND BOILER FOR SALE.

Steam Engine, 6x15, with is-horse-power boiler, feed pump and heater, nearly new and in good order. One (1) se ond-hand "Peck" Lifter, not geased; will raise hammer of 300 los. In weight, BEECHER & PECK,
Lock Box 122, New Haven, Conn.

Just Published.

STEEL: Its History, Manufacture, Properties, and Uses.

By J. S. JEANS, Secretary of the Iron and Steel Institute.

At a Rolling Mill near Philadelphia, a first-class ENGINEER and MACHINIST. One having had experience in this line preferred, with best of reference as to ability. Address

R. H.,

Office of The Iron Age, 220 S. 4th St., Phila., Pa.

Wallied

One responsible who esale house only in each of the princ.pal cities of the United States, Canada and Europe, to sell our bears, Scissors and other goods in their section of the country. To good parties very low figures will be given. Address

THE RENZ HARDWARE CO

Bridgeport, Conn., U. S. A.

Section II. Secretary of the Iron and Steel Institute.

Section II. History of Steel; Chap. 1. History of Steel; 2. Early History in England; 3. Progress of Inverted in the Steel in America; 3. Cher Process; 5. Siemens-Martin Process; 6. Siemens-Martin Process; 10. Austria; 11. Russia; 12. Sweden; 13. Other Countries.—Section III. Chemistal Process; 16. Siemens-Martin Process; 17. Other Methods, 15. Manufacture of Steel; 10. Analysis of Steel; 10.

DAVID WILLIAMS,

83 Reade St., New York,

, 1880.

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Special Notices,

Nut and Bolt Machinery FOR SALE.

3½ in. diam., 1½ in. thick, Hexagon or Square. Ready in five weeks.

Three No. 2 BOLT HEADERS, for making inches interest over 6 %.

The importations the Bolts, Rivets, &c. One on hand; two ready this port during the

6 in. dam. by 7 ing constructed.
One No. 1 WASHER MACHINE, makes all the \$3,707,396 for the corresponding week of washers on manufacturers standard list. Being last year. The importations since the 1st of constructed.

Two No. 2 WASHER MACHINES, make Washin four weeks.

Two Washer Machines, make Washin four weeks.

ers 2½ in. diam., 10 gauge, and all under. Ready in four weeks.

Two 1½ in. DOUBLE HEAD BOLT CUTTERS, with complete sets of Dies and Taps, ½ in. to 1 in. Dies can be faken out and put back without altering the cutting size. On hand.

One ½ in. DOUBLE-HEAD BOLT CUTTER, same as used by Carriage Bolt Makers, for Bolts not larger than ½ in. or ½ in. On hand.

Two CIRCULAR SHEARS, for cutting sheet metal ½ in. thick and under. One on hand; one; ready in five weeks. metal ¼ in thick and under. One on hand; one; ready in five weeks.

Two SIX-SPINDLE and one FOUR-SPINDLE UPRIGHT NUT TAPPERS. Ready in four weeks. One HORIZONTAL NUT TAPPER, second hand, six spindles for ¾ Nuts and under. Will be sold very cheap if applied for soon. Address

YORK & SMITH, 57 South Water St , CLEVELAND, O.

IRON-WORKING TOOLS FOR SALE.

The following Tools of PORTLAND MACHINE WORKS, Portland, Me.

\$275. One new UPRIGHT DRILL, built by Elden Gamman; power feed with drill to center of 46 inches; back geared, 4 steps cone. A very fine tool. Price

Séco.
One large BORING BAR, 18 in, diam., 15 ft, long; self-feeding, with two gibed heads and flange for boring large cyinders. Frice \$185.
One lot of IRON PULLEY PATTERNS, from 5 in, diam. to 42 in., comprising fifty patterns average diam. 16.88 in., average width 7.88 in.; nicely fitted crooked arms, fine style. Price for the lot,

\$50%. Also, Engine Patterns, Gearing, Mill Patterns, Building Patterns, Valves, &c. All will be sold for less than half the cost of production. Inquire of RICHARD PHENIX, Portland, Me., Managing Trustee.

Bissell & Welles, Wholesale Hardware Auctioneers, as follows:

83 Chambers and 65 Reade Sts., N. Y. Sales held weekly for the trade. Consiguments dicited. We refer to the leading Manutacturers

FOUNDRY FOR SALE.

A large Iron Foundry, formerly occupied by John A. Goewey, fully equipped for making Hellow Ware, or other castings. Cupola, Flasks, Patterns and Machinery in first-rite condition. A substantial five-story brick building and molding floor, covering an entire block, with a block of sheds and stables attached. Located on Broadway, Albany, N. Y. Terms easy. Apply to FIRST NATIONAL BANK, Albany, N. Y.

Notice to Manufacturers.

An experienced Traveling Agent, having valuable connections among merchants and exporters in Europe, about making an extended trip, visiting the principal cities in Great Britain and Continental Europe, representing American manufacturers, will add a few more commissions (not conflicting) on favorable terms. Address.

Al REFERENCES, P. O. Box 610, New York.

Hardware stock consisting of Hardware, Paints and Oils; about \$10,000. Amount of sales this year over \$50,000. Located in one of the most enterprising cities of New England. Reason for seling, owner has other business.

Address STANDARD, Office of The Iron Age, \$3 Reade St., New York.

CHEMIST — Wanted, by a young man, a position where chemical knowledge can be made available, either for analysis or manufacture. Has had experience in analysis of ores, &c. Address.

CHEMIST,
Care of Norris & Rutter, Mechanical Draftsmen,
424 Walnut St., Philadelphia.

A STRUATION WANTED—By a Guide Relier; is a sober, reliable man, and can furnish best of reference. Address GUIDE ROLLER, Office of The Iron Age, 83 Reade St., New York.

WANTED—A situation as Furnace Builder or Foreman of Mason Work in a Rolling Mill, by a practical man who thoroughly understands furnace building and boiler setting in all its details. Satisfactory reference. Address B. E. SIMMONS, Fall River, Mass.

WANTED.—An energetic man, with good experience as salesman and broker, is open to engagement January 1st. either for favorable arrangement in Iron Brokerage, as Pig Iron Salesman, cr agent for rail mill.

Address S.,

Office of The Iron Age, 83 Reade St., New York.

Trade Report.

WEDNESDAY EVENING, December 8, 1580. We have on hand and in process of construction some thirty machines, comprising complete outfits of this class of machinery, with many valuable improvements perfected in 1830 by J. Noyee Smith among which are NUT MACHINES, BOLT HEADERS. BOLT CUTTERS, NUT TAPPERS, WASHER MACHINES, &c. &c.
Four No. 2 NUT MACHINES, to making all sizes Hexagon or Square Nuts under 2 in, diam., inch thick. Capacity, 13 to 18 kegs % Nuts per day. One ready in one week; three in five weeks. Five No. 3 NUT MACHINES, for inch by half flexagon or Square Nuts and under. Capacity, foot 0 900 pounds ¾ in. Nuts per day. Two ready in two weeks; three in five weeks.
One No. 1 NUT MACHINE, for inch by half flexagon or Square Nuts and under. Capacity, foot 0 900 pounds ¾ in. Nuts per day. Two ready in two weeks; three in five weeks.
One No. 1 NUT MACHINE, for all Nuts not over 3¼ in. diam., 1¼ in. thick, Hexagon or Square.
Ready in five weeks.

There No. 2 NUT HEADERS, for making inch During the past week the Wall street markets have developed a great deal of

The importations of specie and bullion at Head Bolts, Interest of this port thing of \$3,402,251 in gold in two weeks.

Ore No. 1A WASHER MACHINE, cuts Washers \$3,436,089, consisting of \$3,402,251 in gold in diam, by % in thick, and all sizes under. Bearing the statement of the port thing the port thing of the port thing the port the port thing the port the p this port during the last week amounted to pare as follows with the movement during

the corresponding per	iods last ye	ear:
Gold	1880. \$55,221,499	873.473,722 7,661,:19
Total	Since A 1860. \$58,247,133	\$81,134,841 August t 1879. \$72,641,997 2,321,566
Total	\$55,100,702 ceptions,	\$74,963,563 speculative

sharply. The stock market has been alternately strong and weak, with the weakness more pronounced than the strength. The principal dealings were in Western Union, Lake Shore, Erie, Northwest, Millwaukee and St. Paul, Union Pacific and the coal stocks. The closing quotations of stocks on the active list are given below.

The following Tools of PORTLAND MACHINE	Government bonds have suffered a decline
WORKS, Portland, Me.:	
One large ENGINE LATHE, 60-in. swing, 32 feet	of 1/4 in the 41/2s and 3/8 for other issues.
length of ways; triple gearen compound rest,	We give below the closing quotations.
spindle in head-stock 8 in next to bearing cone,	State bonds have been strong; railroad
stone in hest rod feed cron feed, spindle in	
tail stock 5 in., crank pin borer. All in first-rate	mortgages generally lower. Government
order. Price, \$2200. Built by Elden Gamman.	bonds close as follows:
One COMPOUND PLANER or SHAPER, quick	Bid. Asked.
return, 16-in, stroke, with vise, front angle fron	U. S. 6's 1880 registered
and vise will swivet in any direction, to any degree;	U S. 6's 1880 coupon
circular bars, centers and table cone, 4 steps, 3%	U. S. 6's 1881 registered
in, belt is adjustable at all points of wear. In first-	U. S. 6's 1881 coupon 10414 10436
rate order; good as new. Weighs 6500 pounds.	U. S. 5's 1881 registered 101 1/4 10134
Built by Portland Machine Works for their own	U. S. 5'8 1881 coupon
use. Price, \$800. One SLOTTER, built by Gage, Warner & Whit-	U. S. 414's 1891 megistered
ney, 16-in. stroke, circular or top table 36 in. diam.	U. S. 41/2's 1891 coupon 111/4 112 1
x 3% in. thick, second table 36 in. square x 3% in.	U. S. 4'8 1907 registered
thick, third table 30 in, x 48 in, x 4 in, thick; power	U. S. 4'8 1927 COUPON
feed on two upper tables, hand feed on lower;	U. S. Currency 68 1895
slotting bar 6 in. thick, 6 in. on front, 11 in. on back,	
7 ft. 6 in. long; drive pulley at ft. x 6 in., cone two	U. S. Currency 68 1897 132 — U. S. Currency 68 1898
steps, 6 in. belt, gear 46 in. x 41/2 in.; 9 to 1 fly-	U. S. Currency 68 1809
wheel, 48 in. diam. Built 1865. Weight about 7	1
one Massey Steam Hammer, 300 pounds,	The bank statement makes the following
double-acting cylinder 6 in. by 16 in. Good as	comparison of aggregate averages for the
new. Price \$450.	past two weeks:
One ROOT BLOWER, will melt 31/4 tons iron per	L I
hour at 200 revolutions per minute. Paint not	Nov. 27. Dec. 4. Comparison. G
solled on this machine; first-rate order. Price	Loans\$313,524,900 \$305,701,100 Dec.\$1,823,800
\$275.	Specie 60,177,900 54,534,600 Dec. 5,643,300
One new UPRIGHT DRILL, built by Elden Gam-	Legal t'nd'rs. 12,098,200 12,036,700 Dec. 61,500
man: nower food with drill to center of 46 inches:	Tot reserve 22,226,100 66,571,300 Dec. 5,704,800 L

past	t two we	eks:		
1		Nov. 27.	Dec. 4.	Comparison
Loa	ns	313,524,900	\$305,701,100	Dec.\$1,823,800
	cie	60,177,900	54,534,600	Dec. 5,643,300
	al t'nd'rs.		82,036,700	
	reserve.	72,276,100	66,571,300	Dec. 5,704,800
	osits	289,527,100	270,132,700	Dec. 13,394,400
Res	ired	72,88x,775	69,033,175	Dec. 3,348,600
	plus	105,675	2,460,875	Dec. 2,355,30

Circulation. 18,666,200 18,471,400 Dec. 194,80 The foreign trade movements for the week are shown in the following tables:

FOREIGN IMPORTS. For the week ended December 4: 1878, 1879, 1880, Total for week. \$4,758,683 \$5,763,754 \$4,860,860 Prev. reported. 258,164,866 299,801,362 438,282,625

Since Jan. 1....\$263,913,489 \$305,538,116 \$443,143,485 Included in the imports of general merchandise for the week were articles valued Quantity, Value.

U	Anvils	3	-	84
J	Brass goods	9		2,73
1	Bronzes	7		2,68
١	Chains and anchors	6		41
Ы	Copper			7,31
1	Cutlery	65		27,13
1	Gas fixtures	X		53
//	Guns	63		6,99
a	Hardware	6		57
	Iron, hoop, tons	267		10,85
ı	Iron, pig, tons	1,004		26,92
	Iron, sheet, tons	8		69
4	Railroad bars		:	81
d	Iron ore, tons	289		1,29
	Iron, other, tons	958		21,50
	Metal goods	73		6,14
.	Needles	9		3,60
1	Nickel	9		3,90
	Old metal			2,62
4	Platina	- 3		4.63
	Percussion caps	6.		1,26
c.	Saddlery	3		51,61
	Steel	9,414		51,01
	Silverware	0		
. 1	Tin, boxes			127,38
d	Tin, 3252 slabs; 247,775 lbs			50,24
П	Wire	139		1,03
1	Zibc			3,82
•	EXPORTS, EXCLUSIVE OF	SPECIE.		
1	For the week ended Decem	ber 7		

in	e J		n	u	a	_	_													
	187	_			**	Æ,	y		ī,	8	8	Вc	١.			0				\$7,578,53
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in	187	5.	0								0 1		0			0	0			69,772,00
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of active stocks :

	Or Beering aggress .	Bid.	Asked
	Arizona	7%	73
٥.	American District Telegraph	76%	77
	Atlantic and Pacific Telegraph		373
	Alton and Terre Haute, Pref	_	110
	American Union Telegraph	68	63
6	Boston Air Line	48	49
	Burlington and Quincy	173	2735
ŀ	Central Pacific	80	835
	Clev., Col., Cin. and Indianapolis	8234	. 83
,	Climax		3
	Caribou	2	23
	C. C. and I. C	2034	80
	Canada Southern		725

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			1	1
	Delaware, Lack, and Western 1031/4	80334	given them full power to sell at all times at	1
	Delaware & Hudson Canal 887	89		
	Express—Adams	31732	my lowest and best factory prices and	
	Wells, Fargo	114	torms. I purpose carrying with them a	1 2
		653/2	stock of my Augers and Auger Bits for im-	1.
		52	mediate delivery when required.	1
	EXCERNOR	73/2		1 2
	Erie and Western 341/2	35	F. H. BEECHER.	
	Houston and Texas 68	71	-	2
	Homestake	30	Boston, Mass., November 16, 1880.	
ot.	Illinois Central1211/2	122	A4 - C41 Di 1000	2
	Iron Mountain. 471/3 Kansas and Texas 40%	47%	At a meeting of the Blind Trimming man-	
of	Latra Shana	41	ufacturers, held this day to ascertain the	2
10	Lake Shore	122%	cause of the unsettled feeling as to prices, it	1
	La Plata	91/8	was discovered that a former manufacturer	
0	Manhattan Elevated 3336	50		1 2
0	Mont Clas Cool	33 2	has been closing out a remnant of a stock	-
**	Mont. Gas Coal	3314	held by him when he ceased manufacturing,	
n	Michigan Central	11678	at prices below the combination rates. This	2
n	Metropolitan Elevated	111		-
	Metropolitan Elevated	9%	cause having been removed, and the manu-	
W.	Northern Pacific	7%	facturers whose names are hereby affixed	2
y	Northern Pacific	773	baving agreed to sustain the prices adopted	-
	No Control (Cos)	331/2		
0	New Central Coal 301/2	31	January 3, 1880, it is hoped that the trade	2
1-	New York Elevated	120	will conform with the published rates, as	-
	New Jersey Central	7938	any party failing so to do will not be sup-	
f	Northwest	12334	plied with goods by any of the undersigned.	2.
	Northwest	13934		
4	Ontario Silver 3314	34	(Signed) Salisbury & Austin,	
it	Ontario Silver 321/2 Ohio 35/4	301/8	GALEN, ORR & Co.,	2.
0	Fret	89	Chase, Reed & Co.,	
	Ohio Central 21%	221/2	LOSSES ASSESS & CO.,	3.
d	Panama	210	JOHN AUER & Co.,	
f	Pittsburgh, Titusville & Buffalo 34	35	B. D. WASHBURN MFG. Co.,	2.
f	Quicksilver	13	SECURITY BLIND FAST CO.,	
71	" Pref	49	WILLIAMS, WHITE & CO.,	2
of	Rock Island125	125%	Harana Harana Co.,	
)-	Reading 501/2	503/4	HEDGES HARDWARE Co.,	
	Standard 221/4	23	H. Humphrey & Son.	N
g	Silver Cliff 2½	23/4	Mallory, Wheeler & Co., New Haven,	
	Sutro Tunnel 11/4	136		p
	Stormont 336	3 1/2	Conn., will issue, under date of the 1st inst.,	N
-	St. Paul	109%	the following price list of new Locks, Bronze	12
	St. Paul 10934	121		I.
13	St. Paul and Omaha	44¾ 85½	Trimmings, &c., added to their assortment	
19	St. Paul and Omaha Pret 85	85%	since the issue of their price list of June 10,	P
_	St. Paul and Omaha 3336	32%		N.
1.	San Francisco	40	1880. Their discount is now 45 per cent.	1.
1	th the part Dood	541/2	for all goods except Padlocks and Padlock	10
	Towas and Pacific			1:
97	Texas and Pacific	36	Keys, which remain unchanged at discount	1 :
00	Wabash4338	44	40 per cent. All goods are subject to	10
	Western Union Telegraph	8.7/		
53	Pacific Mail	8978	their usual terms of sale as heretofore.	L
0	Louisville and Nashville 82/4		Sargent & Co. are their New York agents:	1
	Nashville and Chattanooga 79	79%	The agonts.	
8	Keokuk and Des Moines	1352	[Attach to our Price List of June 10, 1830.]	12
P-	Keokuk and Des Moines 9 Pref 37	40	[1
	Burlington and Cedar R. and N 07	69	MALLORY, WHEELER & Co.'s LIST PRICES	
88	Chicago and Alton	141		lτ
e	Chicago and Alton 140 Pref 142 Union Pacific 106%	345	FOR NEW GOODS AND REVISED LIST PRICES	1 4
	Union Pacific 10634	10636	FOR DOOR KNOBS.	L
),	Mobile and Ohio 221/8	20%	1	I
0	Erie Pref 2034	80	DECEMBER 1, 1880.	I
-	Erie Pref	381/2	Our list prices for Door Knobs are re-	I
ul	Peo. Dec. and Evans.	251/2	duced as follows:	K
n	Peo., Dec. and Evans	2934	duced as adilows .	1
	Colorado Coal and Iron 26	79%	No. Per doz. No. Per doz. No. Per doz.	13
	Viele 4676	4.00	216\$1.80 238\$2.25 0253\$1.80	P
е		4376	218 1.80 0238 2.25 254 2.25	1
	" Pref 0414	941/2	218 1.80 0238 2.25 254 2.25 0318 1.83 252 1.80 255 2.25	1
	Chesapeake and Ohio 2234	2236	218 1.80 0238 2.25 254 2.25 0218 1.80 252 1.80 255 2.25 236 2.25 236 1.80 0255 8 25	1
i.	Chesapeake and Ohio	3014	=30111111 4103 433111111 1.0010053111111 1.23	N
d	" 2d Pref 23%	2334	UPRIGHT RIM KNOB LOCKS.	,2
	MINING STOCKS.		Reversible for Right or Left Hand, by simply pull-	1
t	mi full mine were the enstations		ing Latch Bolt forward and turning half around.	

The following were the quotations estab-ished by the last call on the New York

	Mining Stock Exchange this after	noon	1:
		Bid.	Aske
6	Amie	46	
8	Alice	636	7
8	Alta Mont	1.10	I.
á	American Flag	23	
	Bonanza C	20	-
	Buckeye	16	
6	Bull Dom	4.60	4-1
8	Calaveras	23	
	Cale. B. H	1.20	1.
	California	1.70	X.
	Consolidated Imperial	29	
	Consolidated Virginia	1.70	2.5
	Chrysolite	634	65
	Durango	22	1
5	Fa. DeSmet	7.00	7-3
0	Gold Placer	40	4
	Goodshaw	82	1
	Granville	6	
	Gold Stripe	3.60	9.
0	Green Mountain	4.60	4.1
0	Hukill	1.35	X . d
a l	Iron Silver	3.45	3-5
0	Lacrosse	28	1
0	Leadville	51	
	La Plata	9.00	10.0
0	L. Chief		3.1
a	Mariposa	30	1
2	M. White	41	0.00
	Moose	1.00	X.
21	N. Bell I	4.5	4
	Plumas	1.50	* *
	Rappah'k	IQ	1
	South Hite	45	++
	Silver Cliff	2.50	3.
	Tuscapora	29	-
	Unadilla	13	

of goods suited to the requirements of the holidays we notice considerable activity. remain as previously quoted, vis., \$2.75 for

10d. to 60d in wholesale lots. Chisels and Drawing Knives, held in this

dozen. The discounts from list of Chisels 2330, Iron Bolts, Tinned Malleable Iron Key,

with the prices adopted at the late meeting | 2345, Iron Bolts, Tinned Malleable Iron Key, of the Lock manufacturers :

KNOBS. They have also adopted the same discounts for Locks and Knobs as announced in our Prev. reported.. 314,166,184 316,699,a89 376,373,197 columns last week, vis.: 45 and 5 and 2 Since Jan. 1....\$321,361,894 \$322,719,888 \$384,251,339 per cent. for cash. They have in press a new catalogue which will be ready for distribution early in January next.

We have received the following circulars
Office of The J. L. Morr Imon Worlds,
88 & 90 Beekman street,
New York, December 7th, 1880.

follows, viz: Dis. per cent

the discount remains unchanged. Respectfully,
THE J. L. MOTT IRON WORKS.

to represent me as my agents, and have

No.	Per	doz.	No.	Per	doz.		No.	F	er	dez
216		\$1.80	238.		\$2.25	١	0253			\$1.80
218		1.80	0238.		2.25		254			2.25
os18		2.83					255			
236		2.25	253.		1.85	l	0255			# 25

ing Latch Bolt forward and turning half around

	Packed with Japanned Key Escutcheons No. 3221/4 and Screws.
	5-16-inch HubThin Bit Key.
	Without Knobs.
,	No. 4x3% inch, Without Stop. Per doz.
	2200. Iron Botts, Tinned Malleable Iron Key,
	12 change 3 \$4.00
>	and Inon Rolts Brass Kow to changes son
5	
7	2203, Brass Bolts, Brass Key, 13 " 7.15
,	2204, " Nickel Key, 12 " 7.05
	4x3¼ inch, With Stop.
	2205, Iron Bolts, Tinned Malleable Iron Key,
	ra changes St to
	2206, Iron Bolts, Brass Key, 12 changes 5.10
	2207, "Nickel Key, 12 "5,60 2208, Brass Bolts, Brass Key, 12 "7,25 2009, "Nickel Key, 72 "7,75
	2208, Brass Bolts, Brass Key, 12 7.25
5	2209, Nickel Key, 12 7.75
i	4x31/4 inch, With Thumb Bolt.
i	2210, Iron Bolts, Tinned Malleable Iron Key,
	2211, Iron Bolts, Brass Key, 12 changes 0.25 2212, Iron Bolts, Brass Key, 12 changes 0.25 2213, Brass Bolts, Brass Key, 12 0.50 2214, Nickel Key, 12 0.50
	2211, Iron Bolts, Brass Key, 12 changes 0.25
	2212, " Nickel Key, 12 " 6.75
	2213, Brass Bolts, Brass Key, 12 9.50
	2214, Nickel Key, 12 10.00
	41/4 x 31/4 inch, Without Stop.
2	2220, Iron Bolts, Tinned Malleable Iron Key,
3	12 changes \$5.15
5	2221, Iron Bolts, Brass Key, 12 changes 6.15 2222, Nickel Key, 12 6.65 2223, Brass Bolts, Brass Key, 12 8.15
	2222, "Nickel Key, 12 " 6.65
5	2223, Brass Bolts, Brass Key, 12 " 8.15
7	22241
	41/4 x 31/4 inch, With Stop.
	2225, Iron Bolts, Tidned Maileable Iron Key,
,	12 changes \$5.25
	2226, Iron Bolts, Brass Key, 12 changes 6.25
3	2227, Nickel Key, 12 6.75
	2228, Brass Bolts, Brass Key, 13 8.25

Nickel Key, 13 GENERAL HARDWARE.

Considering the season the volume of 2330, Iron Bolts, Tinned Malleable Iron Key, Considering the season the volume of business is satisfactory, and in those lines of goods suited to the requirements of the holidays we notice considerable activity.

The demand for Nails is light, and prices remain as previously quoted, vis., \$2.75 for 10d. to 60d in wholesale lots.

At a meeting of the manufacturers of Chisels and Drawing Kniwa, held in the Chisel

5-16 inch Hub .- Thin Bit Key, and Drawing Knives remain as before.

The Reading Hardware Co, have made the following changes in list prices of their Mineral and Porcelain Knobs to correspond

2345, Iron Bolts, Inneed 2346, Iron Bolts, Brass Key, 12 changes. 2347. Nickel 2348, Brass Bolts, Brass Key, "Nickel 5x31/2 inch, With Thumb Bolt. 2350, Iron Bolts, Tinned Malleable Iron Key, 2351, Iron Bolts, Brass Key, 12 changes 2352, Brass Bolts, Brass Key, Nickel Nickel
Put up in one-half dozen boxes, all different
without Knobs, and lettered A and B.

REFRIGERATOR MORTISE KNOB LOCK. Reverse by removing cap. Packed with Japanned Key Escutcheon No. 3221/4.

New York, December 7th, 1880. \
DEAR SIR: On and after this date our discount on Plumbers' Iron Ware will be as follows, viz:

Dis. per cent.

No. S-16 inch Hub.—Thin Bit Key. Per dos. 870, 33%x1% in., Lacquered Iron Front, Iron Foot Bottom, There Malleable Iron Key.... \$7. TO REFRIGERATOR MORTICE KNOB LATCH.

5-15 inch Hub. Without Knobs. Per doz. No. 5-15 inch Hub. Per doz.
30 860, 1% x1%, Lacquered Iron Front, Iron Bolt \$1.60
MORRISG KNOB LOCKS.

Reversible for right or left hand, by simply pulling Latch Bolt forward and turning half around. 3-16 inch Hub.—Thin Bit Key.

Office of F. H. Bercher, successor to Henry B. Bercher, one of the original partners of and successor to French, Swiff & Co.

To the Trade.—I have made arrangements with Messrs. Durrie & McCarty, of 97 Chambers and 81 Reade streets, New York, to represent me as my agents, and have

2403, Lacquered Iron Front. Brass Bolts,
Wrought Iron Striking Plate, Brass
Key, 12 changes.
2404, Lacquered Iron Front, Brass Bolts,
Wrought Iron Striking Plate, Nickel
Key, 12 chances.
2405, Brass Front, Iron Bolts, Brass Striking
Plate, Brass Key, 12 changes.
2405, Brass Front, Iron Bolts, Brass Striking
Plate, Brass Key, 12 changes.
2407, Brass Front, Bolts, Striking Plate, Brass
Key, 12 changes.
2408, Brass Front, Bolts, Striking Plate,
Nickel Key, 12 changes.
5 to linch Hub 47 18 in —Thin Bit Key.

2408, Brass Front, Bolts, Striking Plate,
Nickel Key, 12 changes.

5-16 inch Hub 4x3/s in —Thin Bit Key,
2410, Lacquered Iron Front, Iron Bolts,
Wrought Iron Striking Plate, Tinned
Malleable Iron Kront, Iron Bolts,
Wrought Iron Striking Plate, Brass
Key, 12 changes.

2411, Lacquered Iron Front, Iron Bolts,
Wrought Iron Striking Plate, Nickel
Key, 12 changes.

2412, Lacquered Iron Front, Iron Bolts,
Wrought Iron Striking Plate, Nickel
Key, 12 changes.

2413, Lacquered Iron Front, Brass Bolts,
Wrought Iron Striking Plate, Brass
Key, 12 changes.

2414, Lacquered Iron Fron', Brass Bolts,
Wrought Iron Striking Plate, Nickel
Key, 12 changes.

2415, Brass Front, Iron Bolts, Brass Striking
Plate, Brass Key, 12 changes.

2416, Brass Front, Bolts, Brass Striking
Plate, Brass Front, Bolts, Striking Plate,
Brass Front, Bolts, Striking Plate,
Brass Front, Bolts, Striking Plate,
Brass Front, Bolts, Striking Plate,
Brass Front, Bolts, Striking Plate,
Nickel Key, 12 changes.

11.75

2418, Brass Front, Bolts, Striking Plate,
Nickel Key, 12 changes.

12.35

Put up In one-half dozen boxes, all different,
without Knobs, and lettered A. and B.

GOLD BRONZE METAL BELL PULL
Packed with Sorews made from the same metal.

Packed with Screws made from the same metal. Ko. Each. 1213, Size of Knob, 1%in., Round Knob..... \$2.50 GOLD BRONZE METAL DOOR KNOBS. Packed with Screws made from the same metal.

No. Per pair.
1138, Size of Knob, 2¼ in., with Round Rose... \$2 25
1140, "Elongated Rose 2.75
1144, "Z½ in., "Round 2.65
1144, "Elongated 3.15 Roses for Nos. 1140 and 11144 are same pattern as Nos. 1124 and 1128. See Cat in our 1879 Appendix, page 43. GOLD BRONZE METAL BELL PULL.

No. 1317, Size of Knob, 1% in., Round Knob..... \$3.00 GOLD BRONZE METAL DOOR KNOBS.

Packed with Screws made from the same metal. No. 1148, Size of Knob, 2½ in., with Round Rose. \$2.75 1148, "Elongated Rose 3.05 1150, "Round "3.05 1150, "Elongated "3.45 "Elongated "3.45 "Elongated 3.49 " Roses for Nos. 1148 and 1152 are same pattern as Nos. 1116 and 1123. See Cut in our 1879 Appendix,

page 42. GOLD BRONZE METAL LEVER BELL PULL Packed with Screws made from the same metal.

No. 1215, Size of Knob, 1% in., Size of Base, 7%x GOLD BRONZE METAL NIGHT KEY ESCUTCHEON Packed with Screws made from the same metal. No. 1266%, size of key-hole, % inch, for Ves-tibule Latches, Night Latches, &c., each.. \$0.25 GOLD BRONZS METAL THUMB KNOB AND PLATS.
Packed with Screws made from the same metal.

June 10, 1880, price list, page 4, we now make the following Front Door Locks and Westibule Latches, with fronts of new design, similar to Nos. 1430 and 1430½, as illustrated in June 10, 1880, price list, pages 29 and 30, viz., Nos. 1438, 1440, 1447, 1450, 1755, 1755, 1755, 1755½, 1756, 1756, 1756½ and 1756½.

We furnish any of our regular Gold Bronze goods, without extra charge, in our new imperial finish, which harmonizes with the present style of decorations; the background is dark and the raised surfaces

bright.
We also furnish these goods dark bronzed, and can match any shade desired to sample

Mallory, Wheeler & Co. have also ready for distribution illustrations in colors of new Pad Locks, with which is shown fac simile of the gold medal awarded them at the Paris Exposition of 1878. We publish on the 22d page an extract from the report of Prof. Wm. P. Blake, Honorary Commissioner of the United States at Paris, on the exhibit of this firm there. Attention is invited to their advertisement on page 21.

Horace F. Sise, No. 100 Chambers street, has been appointed agent for J. W. Biglow & Son, manufacturers of Mallets, Chisel Handles, Door Stops, &c. He quotes Mallets at discount 15 per cent. and Chisel Handles and Door Stops discount 30 per cent. from the following

Mallets. Per doz.

No. 1 Round Hickory, 5 inches long, 2½
1 nches diameter \$1.00
No. 2 Round Hickory, 5 inches long, 3 inches diameter \$1.50
No. 3 Round Hickory, 5½ inches long, 3 inches diameter \$1.50
No. 3 Round Hickory, 5½ inches long, 3½
1 nches diameter \$2.50
No. 4 Round Hickory, 6 inches long, 4 inches diameter \$2.50
Chisel Handles.

Per gross.

Hickory Firmer, Brass Ferrules, 6 sizes, 1 doz in box.

\$6.23 Apple Firmer, Brass Ferrules, 4 large sizes, 1 doz. in box.

\$7.75 In box.

\$7.95 Apple Firmer, Brass Ferrules, 6 sizes, 1 doz. in box.

\$8.25 Apple Firmer, Brass Ferrules, 6 sizes, 1 doz. in box. Door Stops. Plain, with Iron Screws, 21/2 in., Polished, 3

Plain, with Iron Screws, 3, in., Polished, 3 doz, in box. 3, 59 Rubber Tips, Iron Screws, 2½ in., Polished, 3 doz, in box. 4.00 Rubber Tips, Iron Screws, 3 in., Polished, 3 Rubber Tips, Iron Screws, 3 in., Folished, 3 doz. in box.

Rubber Tips, Iron Screws, 2½ in., Cherry, Polished, 3 doz. in box.

Rubber Tips, Iron Screws, 3 in., Cherry, Polished, 3 doz. in box.

Rubber Tips, Iron Screws, 3 in., Cherry, Polished, 3 doz. in box.

Rubber Tips, Iron Screws, 2½ in., Chestnut, Polished, 3 doz. in box.

Polished, 3 doz. in box.

Polished, 3 doz. in box.

Hundley & Hanks, Nos. 79 Reade and 97 Chambers streets, proprietors of North Carolina Handle Works, have just issued an illustrated catalogue and price list of their specialties. In Handles and Spokes they show several new patterns for both foreign .. 5.25 and domestic trade. In addition to their large assortment of Handles and wagon-5.75 makers' supplies they illustrate a good line of Solid Eye Picks, Axes, Hatchets, &c. tive statistics from which it appears (1) that compiled useful tables of shipping weights, giving measurement and weight of Handles in cases, weights of wagon material, &c.

The Mohawk and Hudson Mfg. Co., of Waterford, N. Y., in a circular under date of Dec. 1, say: "Having established new agencies for our 'Eddy' Valves with Messrs. C. H. & H. W. Middleton, in Philadelphia, and Messrs. Morton, Reed & Co., in Balti-

BRITISH IRON MARKET.

Special Report by Cable to The Iron Age. London, Wednesday, December 8, 1880. Scotch Pig.—There is but a small demand, and prices are weaker. The following are makers' quotations :

Gartsherrie Coltness Glengarnock

Manufactured Iron.—The demand continues to improve, and prices are steady. Business has been fair. Best Staffordshire

Steel Rails .- Prices are firmer, under an improved demand. Quotations remain £6. 5/ for Ordinary Sections. Iron Rails.-The demand is increasing

and prices are firmer. A fair business is Welsh are quoted £5 @ £5. 5/. Old Rails .- The Prices are firmer with moderate offerings and fair sales. Old Ts.

Scrap.-Wrought continues firm at £3. 5/, with, however, but small sales.

IRON.

American Pig.-There is little, if any, change to note in the condition of the market this weok. The sales have been chiefly in small lots to tide over the requirements of the moment. As far as prices are concerned the tone of the market is strong, and we doubt very much if our quotations could be shaded where prime brands are concerned. We continue to quote Foundry No. 1, \$25; Foundry No. 2 X, \$21; Gray

Scotch Pig.-Sales are reported, on private terms, of 300 tons different brands ex ship; 150 tons Coltness and 150 tons Gartsherrie, the latter from store at \$23. The demand is light. We quote: Eglinton, \$21.50 @ \$22; Carnbroe, \$23.50 @ \$24; Coltness, \$24.50 @ \$25.50; Glengarnock, \$23 @ \$24, and Gartsherrie, \$23.50.

Rails.-No new business is reported for this market, although in other Iron centers some large contracts have been placed. We quote as before: Iron, \$46 @ \$49, and Steel Rails, \$57.50 @ \$62.50, at mill, accord-

ing to location, terms, &c.
Old Rails.—For Old Rails there is a fair inquiry, and contracts are pending for some large lots. The views of holders are firm at \$26.50 @ \$28 for Ts and D. H.

Scrap.-Sales are reported of 1000 tons Wrought for shipment and about 700 tons ex ship, all on terms which have not trans-We quote No. 1 Wrought, from yard, \$27 @ \$28.

METALS.

Copper.-Since our last report the mar been listless, with a limited demand. and hardly anything transpiring. We quote Lake Superior, nominally, 18749@19¢, as heretofore. We are approaching the holidays so fast that it is but natural a duller feeling should begin to prevail in Copper and the rest of metals, as is usually the case at this time of the year, when merchants and manufacturers feel little inclined to enter upon any new ventures. We do not, therefore, look forward to much business in the metal trade in any direction, including Copper. London announces no change per cable. "London, Nov. 20.—This market, between this year's tonnage and last is having closed quiet last Friday, opened with steadily being lessened. The Coal trade a much firmer tone on Saturday morning, and buying becoming spirited, probably in anticipation of light charters being an-nounced from Chili for the first half of this month, up to £61. 5/ cash was for Chili bars, at which the market closed firm. On Monday morning the charters were tele-graphed as 1905 tons, and the price from Talparaiso was quoted 15/ higher, or £60.

/ cost and freight to Liverpool. The charters consisted of 500 tons of bars and ingots, 150 tons fine in furnace stuff for the United Kingdom, and 1250 tons bars for the Continent. This charter being in excess of expectation, although rather under the average, caused the demand to assume a quieter aspect, and prices fell from £61. 5/ to £61, remaining steady throughout Tuesday at the lower figure." Manufactures remain as under: Bottoms, 31¢; Braziers, according to size, 28¢ @ 34¢; Circles, 31¢ @ 34¢; Segment Sheets, 31¢; Firebox Sheets, 28¢; Sheathing, 26¢; and Bolt Coptrol 83¢. per, 28¢.

Tin .- The lull which usually characterizes metals toward the latter part of December is becoming perceptible even in this mercurial one, and rather sconer than the speculative manipulators may have been prepared to expect. Our r.arket during the week under review has ruled quiet. Aside from the regular jobbing, which is reported still to be fair for the season, only 100 tons Straits have changed hands on the spot and to arrive. The foreign markets, under the action of similar tranquilizing influences, have also begun to droop once more, Singapore cabling \$28.50 per picul, and London, Straits, £92. Advices per mail now reaching us are still written in a very hopeful strain. Messrs. M. Pels & Co., Amsterdam, under date November 17, through the kindness of Mr. Charles Nordhaus, here, forward to us valuable retrospec-

For the convenience of shippers they have | Tin consumption in Europe is at present 100 per cent. larger than ten years since, where-as (2) production has increased in the same laspe of time only a little over 70 per cent.;
(3) that since 1875 production has been diminishing by degrees, and (4) that since then consumption has been continually on the increase. They furthermore show that on crease. They furthermore show that on November 1, 1879, with a European stock of 14,418 tons, the price of Straits was £95, and this year, with 13,463 tons, it was £89. 10/. and Messrs. Morton, Reed & Co., in Baltimore, we would respectfully solicit for them the trade in straightway Valves in the territory adjoining."

We quote at the close, large lines Straits, 2014 @ 2114 & : Australian, 2054 &, and Billiton, 2054 @ 212 & : (London, November 20.—During the past week thore has been a large amount of business doing in this metal, and upon each successive day buying appears to have become more animated and higher prices realized. On Monday spot parcels of foreign changed hands from £89. 12/6 @ £89. 15/, and on Tuesday from £89. 15/ (£ £9. 15/, and on Yuesday from £69. 15/ (£ £90, while on Wednesday business was done betwixt £90 and £90. 10/. Yesterday, buying being particularly spirited, up to £91. 12/6 was paid for sharp cash, £91. 15/ Jan-uary prompt, and £92 three months, while to-day the market has been strong, and closes at £92. 15/ @ £93. Operators appear to have great confidence in the stability of the market, and by the manifest eagerness to purchase it is evident that they anticipate much higher prices, and, while holders remain reluctant sellers, the tendency will probably continue to strengthen. Deliveries have been very good for the first half of the month, and the next statistics may show a very great improvement upon those last issued." Tin Plates.—Although the market has remained in a quiet attitude, there has been noticeable rather a better feeling in response to improved advices from Liverpool, where ordinary Coke is announced per cable where ordinary Coke is announced per cable to be worth 15/6 @ 16/, while here we quote, toward the close, large lots, ordinary brands, per box: Charcoal Bright, \$6 @ \$6.25; ditto Ternes, \$5.25 @ \$5.50; Coke Tin, \$5 @ \$5.12½, and ditto Ternes, \$5.

\$5.12½, and ditto Ternes, \$5.

Lead.—This metal has assumed a very dull look, the dealings being limited to a jobbing trade merely, at \$4.65 @ \$4.75, while Refined, without any transactions to put on record, remains nominally 5¢.

"Loudon, Nov. 20.—This market remains firm, but prices have undergone very little change. There is a moderate demand, and the customs returns show that there have the customs returns show that there have been some very fair shipments made to China lately." Manufactures are quoted as follows: Sheet Lead, 7¢; Lead Pipe, 6½¢; Tin-lined ditto, 15¢, and Block Tin Pipe,

Spelter and Zinc .- The same persistent inactivity, which for some time past has ruled this metal, still continues, nor can we quote Common Domestic any better than $4 \% \phi$, while Silesian is nominally worth $5 \% \phi$ 51/2¢. Sheet Zinc may be quoted 7¢ @ 4¢. "London, Nov. 20.—This market remains dull and very much neglected, and, notwithstanding the easiness of prices, no stimulus is given to the demand, which keeps inactive both for foreign and Eng-

Antimony.—Nothing of moment in the way of sales has taken place, we therefore repeat our quotation of the previous week of 151/2¢ @ 16¢, as to brand.

COAL

Trade during the past week has been somewhat slow. The almost universal re-port in Trinity Building is that things are quiet. Even those firms usually reporting brisk trade under all circumstances, admit brisk trade under all circumstances, admit that not quite as many orders as usual are coming in. Around New York city the yards are reported as carrying light stocks, and buying from hand-to-mouth. Even on the domestic sizes full circular rates are not obtained, except on the best grades, and it is said that there is a good deal of actual cutting of rates. It is a commonly expressed opinion that manufacturers have not laid in stocks of Coal, and it must come into the market later in the season. If this into the market later in the season. If this is so, it is no small wonder as to what has been done with all the Coal that has been sent to tide-water during the last six months. Only a little stocking is reported, although it is said the roads are badly blocked by loaded cars which cannot be got out of the way. In spite of distances and blocks the tonnage still keeps up above 600,000 tons per week, and the difference steadily being lessened. The Coal trade papers are urging the representatives of the companies to come to some arrangements for the coming season, and painting in glowing colors the advantages to be gained from such a course. So far nothing has been decided upon. Broken Coal of the better grades may be quoted at \$3.75 @ \$3.85. Stove comes nearer to the regular circular, and is granted with the companies of the control at \$4.25 @ \$4.45 for the best grades. Carriage \$ 220 Chestnut may be put at about \$3.75. The Pennsylvania Coal Company's circular is \$3.95 for all sizes at Weehawken, Stove excepted, which is \$4.00. This involvant.

of Old Metals, the market for which

The purchasing prices offered by dealers for Old Metals are as follows:

40 th d. . . .

Copper, neavy m m.	₩0.3556	(B \$0.16%
Copper Bottoms	.13	@ .14
Yellow Metal "	**3	
Brase heave 50 %	.09	@ .09%
Brass, heavy		@ .xa
	.081/2	@ .001/4
Composition, heavy 14	.1356	@ .x416
Lead, heavy	023	
Tea Lead		
Zine 1		@ .03%
CALLED A CARACACA CARACACACA CARACACA CARACACACA CARACACA CARACACACA CARACACA CARACACACA CARACACA CARACACACA CARACACA CARACA CARACA CARACACA CARACA	.03	B .03 14
Powter, No. 1	.32 (B .13
Pewter, No. 2	80.	.00
Wrought Iron W ton		
Light do		22.50
	10.50 (Ø 12.00
SOUTE LIEUD	10.00 (D 11.00
Machinery do "	15.00 €	2 16.00
Grate Bars "		7.00
The prices current for Rag	rs. dec.,	are as
follows:	, , ,	
Canvas, Linen	m -1/a	0.1/4
White Cotton, New		@ 4%c.
** No. s "		Ø
White Wo .		Ø
** ************************************	4C.	@ 456c.
" No. 3 44	836 C.	@ 2%c.

Secons. Soft Woolens. Mixed Raga. Gunny Baggling. Jute Butts. Kentucky Baggling Book Stock. Newspapers. Newspapers.	1%C. @ 1%C. 10 C. @ 11C. 2 C. @ 2%C. 14C. @
Newspapers	114c. @ 114c.

EXPORTS

are, Iron, Machinery, Metals,

of Hardware, Iro	n, Machinery, Metals,
Ac., from the Po	rt of New York, for the
Week ending Dec.	
W A Fudio	Quan. Val
Outch West Indies	Lmp.&c.,pkgs. 6 \$344
Quan. Va	1. Lub. oil, bbls. 116 760
ron safe I \$6	London.
arriages 8 1,00	0
locks, cs 3	15 Sew. ma., cs. 41 2,350
tlm., gals3909 5	2 Hdw., cs 657 13,513
INTARTC' co.	Car wheels 138 1,e00
ldw., pkgs 10 13	Table to the total of the table of the table of the table of the table of t
	Lampgds., pg 5 560
	ing. market backer 2 and 2 in and
BLELVIR CO. com	
ара, св ч	On stoves, cs. 6
Hamburg.	United States of Co-
nware. cs 5 8	lombia.
188 41 040 04 000	
sbestos, cs 11 1,00	Ptlm., gals3,725 598
f. iron, pkgs 2 I	
g. imp., pkge I 15	Mf. iron, pkgs. 77 1,279
w. ma., cs., 573 7.76	Ag. imp , pkgs 24 912 7
tdware, cs. 4 28	Cartridges, cs 3 68
ach'y, pkgs. 38 5,52	Lamp gds., pg 7 233
assw'e, pgs. 0 52	Wire, spools, 110 939
im., gals. 861,010 88,080	
fles, cs 8 1,050	Powder, lbs.6, 104 968
iw., pkgs 92 1,74	
Bremen.	Glassw'e,pkgs. 32 355
Diemen	Arms, cs 3 410 V
heels 32 490	Zipc, caks 2 168
oeks, cs 3 50	Cuttery, page, eg 1,307
! iron, pkgs 7 335	Pumps, pkg. 1 23 V
iw., pkgs., 5 100	Tel. mtls., pge 15 ag7
heator Dkgs 28 400	Shot has a 66
m., gais, 2817410 207197	Nails keess a6 x22
. imp., pkgs 10 1,190	Pitdware. cs. x xax
W. ma., Cs. I 55	Iron, pkgs 43 845 C
Amsterdam.	Tin, bas 10 53
	Fuse, bbls 2 77
im., gals. 187,977 18,798	China.
Botterdam.	Mach'y, cs 1 63
iron, pkgs 9 160	
lw., pkgs 27 2,541	
n sofes 7 040	

Iron sales... Wringers, cs... Carriage.... Pumps Mf. iron, pkgs 15 Lamps, pkgs 16 Cutlery, cs... 2 Brass k'tls,cks. 11 300 323 30 1,541 Pumps, pkgs.
Ag. imp.pkgs
Pitdware, cs..
Tinware, cs..
Clocks, bxs...
Machinery, cs. 209 862 50 469 143 66 88 Machinery, cs 2 160 Danish West Indies. Pitdware, cs.. British West Indies.

Hrusti.
Lmp. gds,pgs. 39
Files. 900
Cutlery, pkgs. 74
S'ndpap'r.pkg. 3
Iron, cs. 460
Sew. ma. cs. 76
Fumps, pkgs. 62
Fliedwa'c, cs. 6
Mach'y, cs. 16
Futu., gals. 164,600
Hdw., pkgs. 63
Hdw., pkgs. 63
Inf. 164,600
Clocks, bxs. 51
Tinware, cs. 14
Nails, kegs. 440
Carriage. 14 Watches, cs. 1
Nails, kegs. 45
Hdw., cs. 45
L'anp gds.,pgs 3
Glass, bxs. 35
Glass, cs. 3
Clocks, cs. 2
Ptlm., gals. 22,500
Mf. fron, pkgs. 23
Ag. imp., pkgs 5
Zinc, cask. 2 33 2,874 253 31 68 3,125 457 1,494 2,157 2,045 368 2,855 Bristol. Ptlm., gals. 339, 111 42,389

Cuba. Ptim., gals...7,100 R R mtls..pgs. 345 Mt. iron, pkgs 103 Glassw'e, cs... 18 Hdw., cs.... 86 Hayti. 1,343 1, 24 522 1,615 Ptim., gals...2,600 377
Powder kgs... 293 1,602
Iron, pkgs... 803 1,402
Hdw., cs... 85 998
Nalla, kegs... 88 998
Mf. iron, pkgs 3229
Trucks... 31,650 Glassw'e, cs... Hdw..cs.... Wheels, pkgs. Grindstones ... Mach'y, pkgs.
Steel, bdls ... Brass g'ds, cs.
Gas fixt, cs... Tinware, cs... Lamp gds., pg
Silpdw'e, cs... Pins, case ... 311 2,761 561 3,246 Bilbao. Prlm., gals. 86,590 6,175 Mf. iron, pkgs. 30 380 Lisbon. W. mills, cs... 13

Sew. ma., cs.. Venezuela. Tacks, cs.... 4 S. fron, pkgs... 4 Ag. imp., pkgs 15 Sew. ma., cs.. 2 Ptlm.,gais...10,703 Mf. iron pkgs. 7 Nails, kegs... 10 Tacks. cs... 2 Dunkirk. Tacks, cs. Mach'y pkgs. Nails, bxs. Ptlm., gals.191,941 15,500 Dutch East Indies. Hull. Mf. iron, pkgs 15 Pltedward, cs. 1 Ag.imp., pkgs 4 Ptim., gals. 305,000 40,000 Canada. Wire, coils.... 25 924 Guns, c3..... 5 253 Leith.

3,850 800 Ptlm., gals.994,840 37,497 Glasgow. 105 Iron roll, pkgs. 4
Belting, bales 3
Mach'y, pkgs. 13
Sew. ma., cs., 213
Mf. fron pkgs. 29 1,173 Antwerp. Sew. mach, cs 51 Glassware, cs. 8

Havre.

IMPORTS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending December 5, 1880 :

Hardware. Boker Hermann & Co. Hdw., cutlery, &c., cs., 89 Bawo & Dotterer, Crates, 3 Bruce Geo. W. Cases, 1 Charles R. F. Grindstones, 138 Curly F. & Bro. Mdse., pkgs., 2 Connolly T. J. & Bro. Cases.	Arms, cs., 1 Frasse & Co. Mdse., pkgs Field Alfred & C Mdse., pkgs Casks, 2 Cases, 23 Guns, cs., 37 Arms, cs., 3 Graef Cutlery C Mdse., pkgs
	Mdse., pkgs. Godfrey C. T. Arms, cs., 4

Ch Cu Co Hartley & Graham,
Mdse., pkgs., 3
Guns, cs., 2
Howard Bros. & Read,
Packages, 10
Harmer, Hays & Co.
Jackson R. D.
Case, 1
Mdse., pkgs., 1
Livingston W. & F.
Millstones, 2703
Grindstones, 239
Loewi E.
Case, 1 New York National Banking Association Association,
Hoops, bdls., 17,041
Prosser Thos. & Sons
Wrought rings,
bdls., 6
Windmuller L. & Roel-

ker Scrap, cks., 3 Scrap, kios., 2439 Williamson Jas. & Co. Pig, tons, 100 Order, Ore, tons, 2003 Scrap, tons, 90% Rods, lots, 1129 Spiegel, kilos., 421, McKinless J. A. McKinless J. A.
Packages, 2
Merchants' Dispatch Co,
Guns, cs., 10
Arms, cs., 12
Moss F. W.
Files, cts., 6
Mount J. T.
Casks, 3
Mulford, Carey & Conkling,
Casks, 3
Moore J. P. & Sons,
Gun caos, cs., 3 Pig. tons, 1199 Scrap, kilos., 650,050 Hoops, bdls., 11,409 Scrap rails, tons, Cot'n ties, bdls., 2340

Steel. Moore J. P. & Sons, Gun ca-s, cs., 3 C rtridge cases, c Montgomery J. W. Files, cask, 1 McCoy & Saunders, Mdse., pkgs., 23 North S. P. Box, 1 Struller, Lau & Co. Mdse., pkg., 1 Schoverling & Daly, Cases, 4 Abbott Jere & Co. Cases, 14
Back & Mansor
Rail crop er Hall crop ends

roo
Brown Wm.
Cases, 3
Bundles, 137
Blake Bros.
Bundles, 130
Brown Bros. & Co.
Wire coils, 724
Cases, 137
Moss F. W.
Bundles, 144
Bars, 32
Naylor & Co.
Blooms, 242
Prosser Thos. & 28 Cases, 4 Thompson John, Cases, 1 Cases, 1
Thornton J. & Co.
Case, 1
Tomes F.
Case, 1
Van Nest A. R. & Co.
Cases, 2
Von Cleff & Co.
Whetstones, cs., 13
Whitte J. P. & Sons,
Cases Naylor & Co.
Blooms, 242
Prosser Thos. & Son,
Bands, 27
Bars, 6
Tyre forgings, 28
Scott Thos. & Co.
Bundles, 120
Toheband Bros.
Boxes, 10
Order,

Cases, 4
Winchester Repeating
Arms Co.
Case, 1
Ward Asline, Boxes, 10 Order, Scrap rails, 2348 Cases, 34 Bundies, 323 Plates, pkgs., 2 Casks, 5 Rods, bdls., 100

Ward Asline,
Cases, 7
Wiebusch & Hilger
Hdw. Co.
Hdw., cutlery, &c.,
pkgs., 24
Order,
Cases, 10
Guns, cs., 7
Bundles, 86
Files, cs., x Amsinck G. & Co. Iron Abbott Jere & Co.

Bars, 463
Spiegel, kilosi., vo.000
Brown Bros, & Co.
Wire rods, bdls., 1267
Gal. wire, cks., 52
Wire, pkg., 1
Bloomfield J. C. & Co.
Mch'y, pkgs., 84
Bank of Novada,
Scrap rails, kilos.,
99,854
Sorap rails, 609,
Baring Bros, & Co.
Wire rods, coils, 924
Pig, tons, 300
Brooks & Co.
Scrap rails, pcs., 79
Coddington T. B. & Co.
Sheet, bxs., 94
Sheet, bxs., 94
Sheet, bxs., 94
Sheet, bxs., 92
Cotter E. B.
Scrap, tons, 30
Darrell & Co.
Scrap, tons, 39 Abbott Jere & Co.

Amsinck G. & Co.
Scrap cop., pkgs., 9
Scrap cop., pcs., 28
Bank of Nevada.
Tin plates, bxs., 1842
Byrne Jos. & Co.
Tin plates, bxs., 1699
Dickerson, Van Dusen
& Co.
Tin plates, bxs., 25
Antimony, cks., 33
Darrell & Co.
Scrap brass, bdl., 1
Scrap lead, bdl., 1
Kearney H.
Scrap brass, pkgs., 3
Kipper E.
Cases, 2
Leayoratt & Co.
Scrap copper and brass, cs, 1
Montell F. T. & Son,
Scrap brass, bdls., 5
Scrap copper, bdls., 5
Scrap cap copper, bdls., 5
Scrap cap capper, bdls., 5
Scrap capper, bdls., 5
Scra Scrap, tons, 81/2 Drexel, Morgan & Co.

ciety, Tin slabs, 936 Phelps, Dodge & Co, Tin plates, bxs., 16, 743 Black taggers, 487
Yates & Porterfield,
Scrap, bdls., 30
Scrap cop., bxs., 2
Scrap cop., eks., 1 Serap, tons, to
Lang W. Bailey & Co.
Baws, 173
Bundles, 20
Osboru John & Son,
Scrap, bdls., 16

Scrap cop., cks., 1 Order, Tinplates, bxs., 9857 Tin slabs, 1832 Tin ingots, 51 Spelter, plates, 4221

PHILADELPHIA.

Pig, tons, 100 Ore, tons, 449% isenheimer & Co

Geisenheimer & Co. Wire rods, pkgs.,

Kenny & Shea,

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, Dec. 7th, 1880.

Pig Iron.-The market remains steady. and without any special change of feature. Sales last week were unusually heavy, and included several lots of 1000 to 2000 each of Foundry Iron, and still larger lots of the lower grade. During the past three or four days there has been less activity, owing to the fact that leading consumers owing to the fact that leading consumers generally have covered their requirements for the present, so that transactions are not likely to be of much importance until after the holidays. Stocks are kept within reasonable limits, and although production is large and increasing, the market seems to absorb all the good iron offered at reasonable figures. Cost of production is said to be ble figures. Cost of production is said to be 5.417
4.550
the past six months. It is not an easy matter to see how this can be obviated; an davance of a couple of dollars would open the way for foreign Iron, which, after last year's experience, no one wishes to see again.
The probability is, therefore, that there will represent to cost of importation, and that, of course, will be determined by the fluctuations of the English market. Prices realized during the week have ranged from \$25.69 \$25.50 for week have ranged from \$25 @ \$25.50 for large lots of No. 1 up to \$26.50 for very Iron drums... 134 s,010 large lots of No. 1 up to \$22.00 Mf. fron pkgs. 7 200 choice brands in 100-ton lots; about \$22.00 Ag. imp., pkgs 31 s,775 \$23 for No. 2 Foundry, and \$20.00 \$22 for Mach'y, cs.... 4 800 Gray Forge. Of the latter some 20,000 to panies, all at over \$21, for delivery within three months; and in at least one instance 1 three months; and in at least one instance
a 2000-ton lot of superior grade of Forge
Iron was taken at over \$22. A considerable quantity of good Lehigh Forge, how3,004
3,004
4 ever, has been sold at about \$20 for Phila1619 delphia delivery. Scotch Iron is scarce and is held at \$22 @ \$25, according to brand. Bessemer Iron is in demand, with \$26 bid for a 5000-ton lot of English of extra quality. Charcoal Iron is quoted all the way from \$32 @ \$38; the best brands are firm, others irregular. English Iron nominal at \$18 @

Muck Bar.—Latest sales reported were at \$38, at mill, but an advance of 50¢ @ \$1 per ton is asked, to which, as yet, buyers fail to respond. The advance in material renders an advance in puddled Iron an ab-

solute necessity.

2240 lbs.; and Northern Ore Blooms, \$48.

@ \$50. Structural Iron.-The market is very quiet, and only a few small orders have been on the market. Inquiries are not specially important, either, and for the time being the market looks rather dull. We un-derstand, however, that there is a very large amount of work under consideration, and manufacturers say they have every reason to anticipate a heavy demand in the early spring. In the meantime, orders entered some weeks ago still keep the mills busy, and will probably be sufficient to carry them well into January. In addition to the work for the shipyards and car shops, which is quite important, work is going on for bridges in Canada, Mexico, Maine, New York, Delaware, Maryland, and for several Western States. The only order this week, so far as we can learn, is from the Delaware Lackawanna and Western Railway, requir-ing about 700 tons in all. Prices are steady and unchanged, viz.: Angles at 2 6¢ @ 2.7¢, Beams at 3¢, Channels and Tees, 3.2¢.

Plate and Tank Iron.-The market has been very quiet, and we have not heard of a single order being taken during the week, nor of any inquiry, either, for lots of importance. Manufacturers are fairly supplied with orders, and a more active demand plied with orders, and a more active demand is anticipated after the holidays. Prices are held with a good deal of confidence, and it would be difficult to obtain concessions from quoted rates, unless where work is running a little short. Sales have been made as follows: Tank and Common Plate, 2.75¢ @ 2.87½¢: C. No. 1, 3.3¢; C. H. No. 1, 3.5¢; Flange Iron, 4¾¢ @ 5¢; Fire Box, 5¾¢ @ 6¢. 536 e @ 6d.

Sheet Iron .- The demand keeps up remarkably well for the season, and a very fair business is being done from day to day. Buyers of large lots could probably obtain concessions, but for small lots prices are firm, as follows:

Bar Iron .- The tendency of the market ward improvement, but it is still difficult to secure large orders without making concessions of some kind. The pressure to sell from Western manufacturers is less very indifferent about buying, so that the market is in a dull and unsatisfactory condition. The advance in raw material, slow but gradual, will be severely felt at the. mills, and some advance in the product would seem to be imperative, in order to would seem to be imperative, in order to cover increased cost. Possibly no change will be made until after the holidays, but, with the present outlook, an advance of some kind seems to be only a question of time. Sales at very low prices are mentioned as having been made by mills in the neighborhood during the week, but manufacturers in the city are not disposed to gobelow 2.35\$ for good-sized orders, and 2.4\$ for the general run of business.

Steel Rails.—The market continues from

Steel Rails.—The market continues firm, with a hardening tendency and a very active demand. Sales during the past week, it is said, will reach nearly 40,000 tons, more than half the amount by Pennsylvania manufacturers, the balance by Chicago and Cleveland parties. The demand is almost entirely from the West and Northwest and tirely from the West and Northwest, and a large amount of additional orders are likely to come on the market before spring. Prices realized in the above transactions are be-lieved to have been from \$58 to \$60, at mill, but the exact figures are not definitely known. The increase in the production of Steel Rails this year is estimated at about 25 per cent., or, in round numbers, 850,000 net tons. The output at the various mills is likely to be about as follows: Edgar Thomson, 110,000; Cambria, 100,000; North Chicago, 85,000; Joliet, 85,000; Bethlehem, 85,000; Pennsylvania, 90,000; Scranton, 75,000; Troy, 70,000; Cleveland, 60,000; Union, 50,000; Vulcan, 40,000. It should be stated, however, that the production during the last six months is much the greatest, some of the mills having been entirely closed during the early portion of the year. The above estimate is believed to understate the output rather than otherwise, in which case a production of nearly a but the exact figures are not definitely known. The increase in the production of wise, in which case a production of nearly million and a quarter net tons can be made in 1881, if necessary. Our last week's esti-timate was based on gross tons, but even then, we have reason to believe, was somewhat too low.

Iron Rails .- The market has been very quiet during the past week, and no sales of any magnitude are reported. There is some little inquiry for lots for spring delivery, but no business has been done so far as we can learn. Sales have been confined chiefly to small lots at about \$48 @ \$53 for light Rails, and \$46 @ \$47 for 56's, one lot of a thousand tons going at a slight concession on \$46. Market quiet, but holders are firm.

Railway Supplies .- Prices are unchanged: Spikes, 2.65¢; Fish Plates, 2.5¢; Track Bolts, 3.75¢ @ 4.50¢, according to specification.

Old Rails—Are generally held by strong parties, and not offered at anything nearwhat buyers are willing to pay. Sales have been made at \$26.25 @ \$26.75, according to point of delivery, equal to about \$27 on cars. Odd lots can occasionally be had at same rates, but, as a rule, holders look for higher prices, and it would be difficult to secure. prices, and it would be difficult to secure any large quantity unless higher prices are bid. Flanges are quoted \$26.50 @ \$27; Doubles firm at \$28.

PITTSBURGH.

Office of The Iron Age, 77 Fourth Avenue, } PITTSBURGE, PA., Dec. 7, 1880.

The resumption of river navigation has Blooms.—The market is moderately active and a fair amount of business has been done at unchanged rates, viz.: Charcoal Blooms are quoted \$65 @ \$67.50 per ton of 2464 lbs.; Run-out Anthracite, \$57.50; river, and another important matter in consumken Scrap Blooms, \$52.50 per ton of 1500

ns, \$48.

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hensions entertained at Cincinnati, Louis ville and other down-river cities and towns of a coal famine. Some six million bushels were shipped out on the freshet last week, which will be distributed at the points named.

Pig Iron.-There has been no important change in the general position of the mar-ket since our last report; we can report a continued steady consumptive demand, and contrary to general expectation, there has been considerable sold for delivery next year, running from January to April. These contracts for future delivery demonstrate two things, to which it may be well to refer: First, that there are consumers who are apprehensive of higher prices, and second, that those furnacemen who sold the second, that those furnacemen who sold the Iron in question are not over confident of an advance, as is evident from their preferring to sell at present to taking the chances of the future. While, as compared with a week ago, there has been no advance, the tone of the market indicates continued confidence, and no one looks for a reaction. While it is covaried on all hands that the confidence, and no one looks for a reaction. While it is conceded on all hands that the production is large, it is equally true that the consumption not only here in Pittsburgh, but throughout the West, is also large and increasing. We repeat former quotations: Bituminous Coal and Coke smelted Iron from Lake Ores, \$21 @ \$22, 4 mos., for Cold-short Forge; \$22 @ \$23 for Neutral; \$23 @ \$24 for Cinder-mixture Red short, and \$25 @ \$26 for all ore do.; Foundry grades, \$23 @ \$25. Coke Irons from native ores—Cold-short, \$20.50 @ \$21.50, 4 mos., and \$22 @ \$22.50 for Neutral. Sale 1000 tons of latter at \$22.

Bessemer Iron.—There is a continued

Bessemer Iron.-There is a continued steady demand for Bessemer Iron, and the market may be quoted steady at \$27 @ \$28, 4 mos. A noticeable feature of the market 4 mos. A noticeable reature of the market is that while the price here does not admit of the bringing out of foreign Bessemer from the seaboard, it also prevents Western Bessemer from going into the Eastern markets; in other words, native Bessemer is worth here just about what the best brends of foreign are bringing at the seabrands of foreign are bringing at the sea-board. In view of the fact that the large consumers, the Steel Rail mills, are sold from nine months to a year ahead, it requires no prophet to see that the consumption is destined to be large for a year cr more to

Manufactured Iron.-As noted in our report of last week, a firmer feeling pre-vails, there is still considerable complaint in regard to prices being irregular and unreregard to prices being irregular and unremunerative, and rumors still prevail of large orders being placed at very low figures. It is very difficult to discover who is selling at these low figures, but, according to the old adage, there is generally some fire where there is so much smoke. While our manufacturers nearly all quote Merchant Bars at 2.20¢ @ 2.25¢ rates, 60 days, 2 % off for cash, rumors prevail of sales 2 % off for cash, rumors prevail of sales at 2¢, and even less, for large and well-assorted orders. It is claimed by competent authorities that with Pig Iron at \$22 @ \$22.50. Bars, to afford a fair margin \$22 @ \$22.50. Bars, to afford a fair margin for profit, should bring 2½¢, but, as already stated, no one thinks of asking more than 2¼¢, and it is almost impossible to obtain the latter figure. Sheet Iron is quotable at 3.75¢@ 4¢ for No. 24, with most of the sales at 3.80¢@ 3.90¢. Plate cannot be quoted above 2.85¢@ 2.90¢, and Tank at 3¢@ 3.20¢. Skelp Iron is ranging from 2.20¢ @ 2.30¢, and Hoop at 3¢ @ 3.10¢. Galvanized Iron is quoted at 35 % discount on best Bloom, 45 % on Refined, and 50 % on Common.

Nalls.—There is very little change to note; business continues quiet, while prices remain unchanged at \$2.75, 60 days, 2 \$ off for cash, and the usual abatement on car-load lots of 10¢ per keg. At Wheeling, as we learn from a Wheeling manufacturer, business keeps up remarkably well for the season, as is evident from the fact that most of son, as is evident from the fact that most of the factories are still in operation, but there, as here, prices are unsatisfactory. There will be a regular mouthly meeting of the Western Nail Association in this city to-

Railway Supplies.—There is a continued fair degree of activity for the season, and a largely increased business is expected and a largely increased business is expected early next year. Railway Spikes unchanged at $2\% \neq$ per lb., 30 days; Splice Bars, $2\% \neq$; Track Bolts, $3\% \neq$, with square, and 3.35 \neq , with hexagon nut \neq . Steel Rails—No recent sales reported here. The Edgar Thomson. Works are said to be sold up until next Oc-

Steel .- This important Pittsburgh interst presents nothing new. The mills generally are pretty fully employed, while prices remain about as last quoted. Standard brands Refined Cast Steel, 11¢ @ 12¢ per lb.

brands Refined Cast Steel, 11? @ 12º per lb.

Scrap.—The Scrap business continues
quiet as compared with Pig Iron, but there
is a firmer feeling, although as yet no improvement in price. We quote: No. 1 Seceted Wrought, \$28 @ \$20 ft net ton; Ordinary grades, \$25 @ \$26; No. 1 Machinery
Metal, \$20 @ \$21 ft gross ton; Old Car
Wheels, \$33 @ \$35. gross; Cast Borings,
\$14 @ \$16, gross; Old Car Springs, \$40 @
\$42, net; Old Car Axles, \$37 @ \$39.

Window Glass.—Discounts 60 and 20 on

interest remains in much the same condi-tion noted for some time past. The great drawback is overproduction, and remunerative prices cannot reasonably be looked for while this continues to be the case. There

eason. The streams are all much swollen.

Pig Iron,—There is nothing new to re-port. Prices are steady at last week's figures, with a good supply of all grades, except No. 1 Foundry. We quote: No. 1 Foundry, \$25 @ \$27; No. 2 Foundry, \$23 @ \$25; Gray Forge, \$20 @ \$22; White and Mottled, \$18 @ \$20; Car Wheel Metal, \$38

Miscellaneous Articles. - We quote Old Rails at \$26 @ \$28; Wrought Scrap, \$20 @ \$24; Cast, \$15 @ \$17; Old Wheels, \$28 @ \$30.

Ores.—We quote: 50 % Brown Hematite, per ton, \$2 @ \$2.75; Red Fossil, \$2 @ \$2.25. Nails.—There is no change in the Nail market. We quote them dull at \$3.10 rates, usual discount on 200-keg lots and for cash.

Manufactured Iron.—Bar Iron has been manufactured from.—Bar from has been fairly steady since our last report. We quote it fairly steady at \$2.40 rates; Railroad Spikes, \$3; Track Bolts, \$4; Trestle Bolts, \$4.50; Fish Plate, \$2.50.

Bolts, \$4.50; Fish Flate, \$2.50.

Coal.—The cities south of this are experiencing a pretty severe Coal famine. The greatest difficulty seems to be in securing transportation. All the mines are operating but single relays of hands, and find serious difficulty, as it is, in getting their output to market. We make no change in manufacturers' supplies. Lump is selling at 16#@ 18# at yard and even higher, while in Atlanta the write has gone unto god and in Atlanta the price has gone up to 30¢ and

Coke.-Furnace Coke, \$3 per ton at furnace; Foundry, 10¢ @ 12¢ per bushel.

Steel and Iron Rails.—We quote Steel Bars at \$62.50 for American makes, \$60 for foreign. Iron, \$48 @ \$50; Small T

is firm at \$55. Lead.-We quote : Pig Lead, 41/2 @ 5¢. Steel.—Plow Slabs, 3 in. and under, \$4.70; Black Diamond, ordinary sizes, 13\$.

CINCINNATI.

DECEMBER 7.—Pig Iron.—The output of Pig Iron during the past week has been larger than before, and at prices from for-mer quotations down to the following:

dry ... 31.50 @ 24.00
No. 2 Hanging Rock Coke Foundry ... 22.50 @ 24.50
No. 1 Hanging Rock Coke Foundry ... 22.50 @ 24.50
No. 2 Hanging Rock Coke Foundry ... 22.50 @ 24.50
No. 2 Hanging Rock Foundry ... 24.00 @ 24.50
No. 2 Virginia Coke Foundry ... 22.00 @ 24.50

BOSTON.

DECEMBER 3.—The from more wholesome exhibited a steadier and more wholesome time. The supply DECEMBER 3.-The Iron market has seldom and demand for American Pig Irou are very even, and while consumers are fairly pro-vided with material for present wants, makers of iron are well sold up, and promises for the future are encouraging. Any attempt to advance prices is stoutly resisted by buyers, but any attempt to secure conby buyers, but any attempt to secure concessions is as sturdly repelled by sellers. We continue to quote American Pig Iron at \$25 @ \$26 for No. 1 X; \$20.50 @ \$22.50 for No. 2 X, and \$20 @ \$22 for Gray Forge. These prices are f. o. b. at the port of shipment. Small spot lots will command \$2 per ton higher. Foreign Pig is in moderate demand at unchanged prices, and we continue to quote: Eglinton at \$22; Gartsherrie and Glengarnock at \$23 @ \$24: Coltness and Langloan at \$24 @ section with repelled by sellors, which is notable for this season of the year quiet as compared with Fig Iron, but there is a firmer feeling, although as yet no improvement in price. We quote: No. I Section with representation in price. We quote to No. I Section with representation in price. We quote to No. I Section with representation in price. We quote to No. I Section with representation in price. We quote to No. I Section with representation in price. We quote to No. I Section with representation in price. We quote to No. I Section with representation in price. We quote to No. I Section with representation in price. We quote the port of shippment. Small spot lots will be port of shippment. Small spot lots will compare the part of the port of shippment. Small spot lots will compare the price of the price of

consigned principally to Cincinnati and Louisville, and as a consequence the apprehensions of a Coal famine at those points have subsided. If the river and weather are favorable, a considerable proportion of that Louisville, and as a consequence the apprehensions of a Coal famine at those points have subsided. If the river and weather are favorable, a considerable proportion of that consigned to Louisville will be sent further South. If the river only remains open long enough for the towboats to get back home with tows of empty Coal craft, which are needed for loading at the mines, the Coal men would stand a freeze up for a month or two.

Petroleum.—This great Pennsylvania interest remains in much the same condition noted for some time past. The great drawback is overproduction, and remunerations. cwt., and smaller parcels at 5%¢ @ 5%¢.
The prices of manufactures are unchanged, The prices cannot reasonably be looked for while this continues to be the case. There are those who believe that there will be a radical change before another year rolls around.

CHATTANOOGA.

Office of The Iron Age, Market and 8th Sts., CHATTANOGGA, Dec. 8, 1880.

The weather has been intensely disagreeable during the entire week. This restricted trade very much. Then December is the settling month of the year, and operations during the coming four weeks will be confined to what may be needed for present use. Prices continue quite steady, with a good outlook for business after the holiday season. The streams are all much swollen.

Messrs. Geo. H. Hull & Co., Commission Merchants, report to us as follows, under date of December 4: No large sales are reported, but the volume of business is satisfactory, although the demand is of the hand-to-mouth order only. We quote for cash as follows: cash as follows:

FOUNDRY IRONS.
No. 1 Hanging Rock, Charcoal\$27.00 @ 28.00
No. 2 11 11 26.00 @ 29.00
No. 1 Southern, Charcoal 24.00 @ 25.00
No. 2 " 23.00 @ 24.00
No. 1 Hanging Rock, Stonecoal and
Coke 24.00 @ 25.00 No. 2 Hanging Rock, Stonecoal and
Coke 23.00 @ 24.00
No. z Southern, Stonecoal and Coke 24.00 @ 25.00
No. 2 " 22.00 @ 23.00
"American Scotch" 23.00 @ 24.00
Silver Gray 21.00 @ 23.00
Scotch 28.00 @ 29.00
MILL IRONS.
No. z Charcoal, Cold-short and Neu- tral\$21.00 @ 24.00

trail

No. 1 Stonecoal and Coke, Cold-short
and Neutral 21.00 2 21.50
No. 2 Stonecoal and Coke, Cold-short
and Neutral 20.50 2 21.50
No. 1 Missouri and Indiana Red-short 20.50 2 21.00
No. 1 Missouri and Indiana Red-short 20.50 2 27.00
White and Mottled, Cold-short and
Neutral 18.00 2 19.00

W. B. BELKNAP & Co., Iron and Steel Merchants, Nos. 113 and 115 Main street, report to us as follows under date of

December 4: Trade, though quiet, is by no means discouraging in volume, and lots on which concessions are made are promptly picked up by buyers. There is hardly enough activity to alarm us when we hear of an advance in other markets, and yet, if an advance could be established, many a jobber in this section would be caught short. We learn of 1000 tons pig being bought by a broker on speculation. But such a case is a broker on speculation. But such a case is exceptional, and we doubt if trade was ever more closely confined to its legitimate ever more closely confined to its legitimate channels. Bar Iron and Nails are unchanged; Sheet Iron is a little weak, but the change is hardly quotable. The new published price of Strap and T Hinges is looked upon as fair. The reduction in carriage Hardware was inevitable, and it is thought some other Hardware lines may be adjusted for the spring trade in January.

CLEVELAND

DECEMBER 7.—The market for Ore for pres demand for immediate wants at 2.15¢ to enlarge, especially by the various steel

The second course		
BESSEMER.		
Bessemer Specular	8.00 @	\$10.00
Bessemer Hematites	6.50 @	7.00
Menominee Range Bessemer	6.50 @	9.08
MILL ORES.		
Speculars	7.00 @	0.00
Homatites	6.95 @	0.75
BALTIMORE.		
BALTIMORE.		

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of Dec. 6: Trade ruled rather quiet for the past week, which is notable for this season of the year, but with prices firm and unaltered:

HOT BLAST CHARCOAL.		
Missouri	\$26.00 @	27.00
Southern	25 00 00	06 00
Hanging Rock	28.00 @	29.00
CORE AND COAL		
Missouri	25,00 @	26.00
Southern	24,00 (4)	
Ohio	24.00 @	
MILL IRONS.		
Cold-short	22.50 @	23.00
Red-short	23.00 @	
CAR WHEEL IRON.		
Missouri	30.00 @	38.00
Southern	38.00 @	42.00
Ohio	35.00 @	
ORE.		
Ore for flx	10.00 @	12.00
For furnace	6.50 @	7.50
Brown Hematites	no marl	

RICHMOND.

	Mr. ASA SNYDER, Iron Merchant and Fur-
	nace Agent, writes as follows under date of
	Described Divinity of the
	December o: Business is entirely confined
	to small orders; market firm at quotations.
	Scotch Pig Iron \$25.00 @ 28.00
	American Scotch Pig Iron 28.00 @ 20.00
	No. 1 27.00 @ 20.00
1	No. 2
1	No. 3 20.00 @ 22.00
	Mottled and White 10.00 @ 20.co
	Virginia Charcoal Wheel Iron 36,00 @ 40,00
	Old Raila
	Wrought Scrap, No. 1
	Cast, Machinery Scrap 21.00 @ 22.00 8
	Richmond Refined Bar Iron 2.6 @ 1
	Horse Shoes, Tredegar
	Mule " " G S.OO L

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.) LONDON, ENG., November 22, 1880. THE SITUATION, in a commercial sense, remains tolerably satisfactory, although it would not be diffi-

cult to point out particulars in respect of which there is room for improvement. On the whole, however, we are maintaining the favorable change alluded to in my last, and there are circumstances and surroundings which render most persons relatively easy and happy as to the concluding month of the year. There seems to be little or no doubt that we shall end 1880 much more favorably and hopefully than we commenced such merit, and deals so extensively with such more to American metaltendency to impart greater vigor and confi-dence in all directions. It is pretty plain, at all events, that the iron market is gaining strength in many respects, and that in the cruder departments there is a good deal of finessing between sellers and buyers, which nnessing between seners and buyers, which betokens the existence of an impression that "things is movin'," and that the initial months of 1881 may bring about higher prices. In all this, I admit, there may be prices. In all this, I admit, there may be more than meets the common eye, but we must take things as we find them, and leave hair-splitting to be developed by the march of events. It is reported that the smelters of many kinds of pig, including hematites, are so well sold forward that they are insisting upon 1/6 @ 5/ per ton more where deliveries are sought for over the first quarter of next year. These additional prices have been paid, as a matter of fact, during the past week, and the majority of the Midland and Western furnace owners apparently feel strong enough to meet buyers face to face on these higher figures. Furchasers, it should hair-splitting to be developed by the march of events. It is reported that the smelters of many kinds of pig, including hematites, are so well sold forward that they are insisting upon 1/6 % 5/per ton more where deliveries are sought for over the first quarter of next year. These additional prices have been paid, as a matter of fact, during the past week, and the majority of the Midland and Western furnace owners apparently feel strong enough to meet buyers face to face on these higher figures. Purchasers, it should be remembered, are by no means without weapons; indeed, the wonder is that with such strong arguments as are at their comweapons; indeed, the wonder is that with such strong arguments as are at their con-mand they should be willing to pay the en-hanced rates. The fact is, therefore, all the more noticeable and worthy of attention on the part of all and sundry on both sides of the Atlantic. The pessimists naturally point to the enormous stocks which exist in Cleveland and Scotland as irrefragable reasons why iron should not and cannot advance, and some of them have sought publicity in the newspapers in order to fire off their views for the edification of a dull and unenlightened public. The majority of these gentlemen have, I am afraid, "axes to grind" of their own, and are not unwilling to utilize any available means of bringing it was not his modesty, but another reason, their own purposes forward. I remember a not very remote case which has since made me exceedingly suspicious of the motives of these publicists. A letter appeared, a con-siderable time back, in the Times on a sub-ject which at that time happened to be of paramount interest to American readers. It was signed by a well-known gentleman, whom I at once approached on your behalf, thinking more detailed information would be acceptable to the readers of The Iron Age. The gentleman plainly told me he was a largely interested party, and that he had indited his epistle in order to favor that rise which would put money in his own purse. I need not state that he did not obtain any additional gratis advertising through the medium of this correspondence. The incident shows, however, that published public letters should generally be taken with very large pinches

warrants which are at once negotiable, whereas the iron might not sell for a long time ahead. This is doubtless the case in a certain degree, but, so far as I can see, the same reason will tend to tide over any rem same reason will tend to tide over any rem nants of the period of depression, and will sooner or later land the trade "on the rock." If the public buy now and hold, there seems to be no special reason why they should not continue to do so. If other investments are insufficient to absorb the enormous surplus capital of the country, warrants will still obtain the support of those who are not satisfied with consols or other low dividend satisfied with consols or other low dividend securities. If, on the other hand, new com-panies or foreign loans make their appearsecurities. It, on the other hand, new companies or foreign loans make their appearance on the market, their advent will necessarily be accompanied by schemes which will provoke a demand for iron. Hence, in one form or other, it is not unreasonable to assume that the upward movement possesses elements of much elasticity and promise, even if it does not as yet deserve to be termed stable. That it may early assume more expanded dimensions no one who has observed the recent course of events at home, on the Continent of Europe, and with you can deny, while, at the same time, he would be a rash man who would pronounce, off hand, that the era of renewed prosperity had already been soundly and surely started. The fact is we are still hanging on the skirts of your late lamented boom, and until we and you shall have adopted our ordinary course of things, we shall not be able to see quite clearly where we are going. The key of the situation is, I fancy, no longer in your possession; the new holders are many different nations, who may or may not know how to use it, or, knowing, may prove clumsy in so doing. What I mean to not know how to use it, or, knowing, may prove clumsy in so doing. What I mean to say is that the elements of prosperity are all around us, but it yet remains to be seen whether Great Britain will benefit as largely thereby as has heretofore been the case. The current reports of the iron and steel trades are all hopeful and good, and at the time of this writing all the signs rule in favor of an augmented volume of business. A leading event of the week has been the reading of a paper by Mr. E. Windsor Richards, general manager of Bolckow Vaughan & Co. (Limited), Middlesboro', before the Gleveland Institute of Engineers on iron and steel making generally, with especial reference to

THE THOMAS-GILCHRIST PROCESS,

it, and that our business transactions during the penultimate and ultimate months will be far sounder and more genuine than the inspace serves. I would, nevertheless, direct fated sales of the corresponding period of 1879. In this comparison alone there is much room for congratulation; indeed, its mere existence is a fact which must have a tendency to impart greater vigor and configasses. In respect of blast-furnace practice Mr. Richards concedes that you are a long way ahead, but he claims a corresponding way ahead, but he claims a corresponding precedence for our rolling mills, and inci-dentally states that Mr. Holley has at length arrived at the conclusion that the reversing system with two-high rolls is preferable to arrived at the conclusion that the reversing system with two-high rolls is preferable to the three-high plan, of which Mr. Holley has always hitherto been regarded as the high priest. Your Bessemer practice is also highly spoken of by Mr. Richards, whose paper is remarkable for its impartiality, as well as for its fulness of detail. As regards the Thomas-Gilchrist process Mr. Beinards converter, with an intermediate pouring into a ladle. He declared, nevertheless, the new process to be a "technical and commercial success," and appeared quite sound on both heads. An incident occurred sound on both heads. An incident occurred at the close of the paper which deserves notice, although it does not appear in the printed reports. Mr. Edward Williams, president of the Iron and Steel Institute, in proposing a vote of thanks to Mr. Richards, said he attributed it to Mr. Richards' modesty that he had forgotten to mantion that he avoided the office of the mention that he avoids and he was sorry Mr. Williams had alluded

SCOTCH PIG IRON is steadily firm, with no apparent disposition to give way, notwithstanding the fact that the statistical position of this class of iron grows no better, but rather worse weekly. There are 120 furnaces blowing (including 8 on homatites), against 99 a year ago. Warrants are now 52/4, against 55/7 this date a year back, and makers' brands in about the same proportion. The Bank rate was then 3 per cent.; now it is 2½ per sent. The shipments to date this year have been 603,-158 tons, against 512 315 tons in 1870 to shipments to date this year have been coz,-158 tons, against 512,315 tons in 1879 to date, an increase of 89,843 tons, of which more than that tonnage has increased foreign, but has been set off by a slight decrease coastwise. The monthly average prices of warrants, according to Messrs.

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Janua	A.F	v	e																										70/8
Febru	18	ř	y	i.									Ī	ì		Ì		ľ	Ċ					•				•	67/736
March	a.						,																						58/11
April.				,		0	0						۰	۰											٠				. 82/
May.		ь	0	۰	0	0	0	0	۰	0	۰	0	۵	0		۰	۰	0					۰		0	0	9	0	45/1136
June.									0	0.0											, ,			,					47/234
July .							0.		0.	0 1		0 1			, .								۰			0			52/436
Augu	ut		0		0	۰	а	٥	0		0	۰	0	۰	a	0		0		۰	0	0			۰	0	۰	۰	54/63%
Sopte	m	ı	H	N	r			0	0	0	۰	0	0	۰			٠,		. ,				٠		0		0	٠	51/1%
Uctob	0	ŗ,		0.9			0.	٥	0	0			ņ	a		0		0	,		0				0	۰		٥	50/73%
NOVE	n	b	0	r	١,		ů.	0	0.	9.	0			,	,	, ,			,		0	0	۰		٥	۰	,	0	3-11/4
Decon																													

firm market for Scotch Fig Iron with a fair business doing. On Monday, Warrants opened firm at 52/5, cash, advancing to 52/8. On Tuesday as high as 52/11 was paid, closing at 52/9. On Wednesday the feeling was flat and we receded from 52/7½ to 52/1. Yesterday we had business from 52/ to Yesterday
52/4½. To-day we have been steady with
business between 52/3 and 52/5, cash, closing buyers 52/4½, sellers very near. The
shipments last week were 10,550 tons, as
compared with 13,149 tons for the corresponding week of 1879." We quote:

No. 1. No. 3.

DOTTOTAL MOON	00001	2.					-	-	4	
									No. 1.	No. 3
G. M. B., at Gla	sgow			 	٠	۰	0 1		53/6	51/
Gartsherrie, at	Glasgow				0			v	64/6	54/
Coltness,	0.6			 	0				64/6	54/
Summerlee,	6.6								62/6	52/
Langloan,	0.0			 					64/6	54/
Carnbroe,	4.6								58/	54/
Calder, at Port	Dundas.			 					63/	54/
Glengarnock, at	t Ardros	sal	n		0				58/	544
Eglinton,	6.6								54/	98/
Dalmellington,	6.0								54/	51/
Shotts, at Leith				 0					64/6	55/
										3 2 4

Spanish Iron Ore is being imported into the Clyde ports, probably for the use of the malleable ironfounders as well as for the Scotch steel works.

CLEVELAND PIGS

are very steady at the following rates, which are net cash, f. o. b. at makers' wharves in

the Te	ees:				
No. 1 F	oundr	y	45/	No. 4 Forge	39/
- 3	6.6		43/6	Mottled	38/
3	4.6			White	38/
. 4	8.6		39/6	Kentledge	42/

The production throughout the North of England is continued "full bore," and the lion's share of the output is sold clear away. There are about 113,000 tons in store at Middlesboro', including about 1500 tons added last week. The local consumption is so great, however, that the reserve is not thought likely to be added to in any serious. degree at present. With the falling off of shipments it will need a remarkable activity at home to sustain the market at its present

WEST COAST HEMATITES

at the moment are quite firm, with every

	No. r.	No. 2.	No. 3.
Cleator	. 72/6	71/	70/
Lonsdale		65,	64/
Workington	66/	65/	64/
Lowther	66/	65/	64/
Moss Bay	60/	65/	- 64/
Harrington	66/	65/	64/
Solway	66/	63/	64/
Maryport	66/	65/	64/
Askham	65/	64/	63/

THE ANTHRACITE QUESTION,

to which I made a passing allusion in my last letter, is apparently being pushed well to the fore. A further meeting of the "Fog and Smoke" Society has been held during the week. At this meeting the chairman said the authorities of the South Kensington Museum had given their sanction to an ex-Museum had given their sanction to an exhibition or display there of the different kinds of coal and various forms of grates and stoves, so as to induce the public to mend its evil ways in respect of smoke-making and fuel-wasting. At the same meeting an anthracite coal company in Wales had sent in specimens of the pure anthracite coal raised and sold by them. Besides the specimens, the enterprising Welshmen had sent a deputation in their "joint and several" interests, as the old legal phrase runs, and, in order to hit the nail very hard on the head, the deputationists explained that anthracite coal was used in New York, where, said they, "fogs like those of London are unknown."(?) I do not gather that they, therefore, recommended American anthracite, but I observe they demonstrated the anthracite coal fields of South Wales to be "practically inexhausti-ble." There the matter at present rests, but a "conference of manufacturers and others" is called for November 25, at the Cannon Street Hotel, for the purpose of considering and devising means of dealing with the evils of the excessive production of smoke in and about the metropolis. I may remark that we have not yet had a real fog this November, but if the present hyperbo-rean weather continues, I'm afraid we may anticipate a "regular" series of 'em.

AT SHEFFIELD

Business is very brisk in almost every department. I have come across gentlemen engaged in many of the lighter branches within the past week or two, and I gather accurate that the trad tion than could have been anticipated a couple of months ago. The one topic of conversation at Sheffield since Tuesday last has been the sudden and serious illness of Mr. Mark Firth, the well-known and highly respected head of the firm of Thomas Firth & Sons, steel, &c., manufacturers. Mr. Firth was seized on Tuesday, November 16, with an attack of paralysis, closely followed by a fit of apoplexy, while sitting in his private office at the works. He was offered some stimulant, but grew unconscious, and was at once removed to his residence at Oakbrook, west of the town. There he has since lain in total mental oblivion, save that, as I write, there comes the welcome intellias I write, there comes the welcome intelli-gence that the light of consciousness appears to be returning, as evidenced by his feeble recognition of familiar faces. That Mr. Firth may recover his health and strength must be the earnest wish of every one who knows Sheffield and Mr. Firth. He is now, I believe, in his 62d year; is of moderately full habit; has been married twice, his sec-He is now, ond wife now living, and has a family of four or five children. To all Sheffield men and women Mr. Firth is "Mark Firth," pure and simple. The term conveys no undue or grating sense of familiarity to those who know the town and the people. Mark Firth has done much for his native town and he is beloved of its inhabitants. I am, personally somewhat cynical as to the merits and s of the ordinary heroes or favorite 'Many Headed," but I think M Firth deserves the good esteem in which he is held. He has given the town a public park worth £50,000 or £60,000 to-day, and perhaps five times as much 50 years he has built and endowed a handsome college, as well as a set of almshouses for indigent persons. Besides this, he has done much for the trade of the town and in other respects which need not be mentioned here. He is an excellent business man—his transactions in Swedish iron being known to many on

firm market for Scotch Pig Iron with a fair your side-and enjoys the reputation of being the "best judge o' a bit o' steel" in the town. Mr. Firth will, I trust, recover somewhat, even if he does not regain his old robust health, and live to still further benefit the town, which, in some senses, needs a little more public spirit than it possesses.

BIRMINGHAM

is sending more hopeful reports as to the condition of the local industries than we have heard thence for some time past. The iron works are moderately well engaged in the surrounding district, with here and there a busy, and here and there an idle, establishment. The hardware branches are more evenly and regularly employed—a result, perhaps, of the near approach of the end of the year. On all sides more cheerful accounts are given by manufacturers and travelers. Money is easier to collect and orders less difficult to be secured—especially in London, Scotland and the Southern and Western counties of England. The ship-building requirements of the chief rivers are also contributing to swell the total turnover. From abroad indents are decidedly improving, particularly from France, Italy, South America and the United States. Australia and New Zealand are overstocked in almost all lines of hardwares and iron.

BRITISH, FOREIGN AND COLONIAL TRADE.

In the current number of the Ironmonger Nov. 20, I notice a series of statistics in tabular form, which appear to me to present the material for a variety of interesting and instructive comparisons, as you will doubt-less notice on analyzing the figures. The returns are so given as to show in parallel columns the imports from, and British exports to, these countries and colonies during the first nine months of 1870 and 1880. cannot pretend to go through these figures seriatim, but I may, perhaps, venture to point out two or three principal results of the comparison. The first of these is that in the periods named Great Britain imported from foreign countries to the aggregate value of £336,373,319 in 1880, as against possessions amounted to \$273,500,059 in 1850 and £63,049,007 in 1879, to Sept. 30. The exports to all the colonies and possessions were £55,086,536 in 1880 and £44,465,671 in 1879. These figures show increases in all directions during the present year. They also show the following:

Total imports from foreign countries, 1880..... £236,373,319
otal exports to foreign countries, 1880 111,050,441

Tomicaborn to rounding commend to	
Balance against England on foreign accounts, 1880	£124,413,878
Imports from colonies, 1880 Exports to colonies, 1880	
Balance against England on colonial accounts	£18,420,123
Total imports to Sept. 30, 1880	£309,879,978 167,045,977
Balance against ourselves	£142,834,001

FOREIGN.

PRANCE.

the last mail had left a good demand manifested fiself, and large dealings would have resulted if holders had been willing to sell on the basis of a fixed exchange on England. Subsequently cable advices from there became less favorable, loading to sell on the basis of a fixed exchange on England. Subsequently cable advices from there became less favorable, loading to sell on the basis of a fixed exchange on England. Subsequently cable advices from there became less favorable, loading to sell on the basis of a fixed exchange on England. Subsequently cable advices from there became less favorable, loading to sell on the basis of a fixed exchange on England. Subsequently cable advices from there became less favorable, loading to the same at sell of the complete of the same to cook lios. Ingots and Slabs, 166.75; Tis has risen 12.50 frames. We quote the Banos, 20; Billiton, 18. Straits and Austrakin, 247.50, and English Refined, 24. Lead has improved 50c. We quote the same at Havre and here, 38 @ 38.75. Spelter has given way if ranc. We quote the same, 43. @ 43.5.

If the same at Havre and here, 38 @ 38.75. Spelter has given way if ranc. We quote the same, 43. @ 43.5.

If the new of the enormous amount of work is in an expectant attitude, but the general impression seems to be that we are on the eve of a rise. In view of the enormous amount of work that the demand will soon set in and produce a general appreciation. Merchant Iron for flooring remains 17.75 francs the roo kilos. for small loss and 17 for large ones. In the Meurthe and Moselle that the demand will soon set in and produce a goor of the second producers in the Nancy region now ask 6 francs for deliveries spread over a number of monks of 188; Longwy asks fortnight very large orders, but they had been positively expected. The fact is that a number of heavy consumers saw their stocks durinish very materially, and had to make up their minds to replenish them. Pig Iron producers in the Nancy region now ask 6 francs for deliveries spread over a number of mon (Moniteur des Interets Materiels.)

BELGIUM.

Revue Universita.

(Revue Universita.**

Revue Universita.

**Baussels, Nov. 21, 1880.—Fron.—The tendency of the market in Belgium is the reverse of strong. so far as Iron is concerned, while Steel is for the moment only moving off for American account. At Charlerol the market for Iron is positively weak under a lack of orders and pressing offers at lower figures. No. 1 Merchant Iron sells there at 12 @ 12 50 francs, and good brands at 12.50 @ 14.50, while No. 2 brings 12.75 @ 13.50 and No. 3, 13.40 @ 14.50, while No. 2 brings 12.75 @ 13.50 and No. 3, 13.40 @ 14.50, while No. 2 brings 12.75 @ 13.50 and No. 3, 13.40 @ 14.50, while No. 2 brings 12.75 @ 13.50 and No. 3, 13.40 @ 14.50, \$10.50 and No. 3, 13.45 @ 14.50, \$10.50 and No. 3, 13.45 @ 14.50, \$10.50 and No. 3, 13.45 @ 16.50 and No. 3, 13.45 @ 16.50 and No. 3, 13.40 @ 16.50 and No. 3, 13.40 @ 14.50 and No. 3, 13.45 @ 16.50 and No. 3, 13.50 and (Revue Universelle.)

GERMANY.

from abroad, especially America, but the majority of them are hard up for orders, and in hopes of being indemnified by work for our own railroads. The government railroads have taken six locomotives, with tenders, the first purchase of the kind for some time past. Machine shops and foundries are still satisfactorily employed, but bridge makers have less reason to be contented. In spite of low prices, the blast furnaces in the Dortmand district have not got a sufficiency of occupation on hand. In the Siegen country there is a downright dearth of Fig Iron orders. Merchant Iron has given way from 120 marks to 115. The business in Coal is on the increase daily. The new railway arrangements work smoothly, and at the same time navigation on the Rhine has been reopened. The demand exceeds the supply. Metals.—Lead has remained unathered. English Pig, 17 & 17.50 marks the 50 kilos.; ditto Sheet, 17.50 @ 18; German Pig, 15.30 @ 18.50; and Spanish, nominally, 19 marks. Copper is sus tained; we note Atvidaberg Swedish Ingots, 50; Drontheim Rosettes, 78 @ 76; English Refined Ingots 66 @ 68; and ditto Sheathing, 76. Thi is rising. We quote Banca, English Common and Australian, 98 @ 100 marks; and English Refined, 102 @ 104. Speiter has given way. We quote Siesian, Sheet Zinc, 22.50; and ordinary numbers of Vieille Montagne Belgian, 23, 10 marks the 50 kilos. Sheet Zinc, 22.50; and ordinary numbers of Montagne Belgian, 23.10 marks the 50 kilos.

(Koch & Vlierboo ROTTERDAM, November 16, 1880.—Tin.—A quieter feeling prevails; sales during the week have not been large. We quote Banca 54.75, and Billiton 54 guidders the 50 kilos. It will be of interest to follow the course of prices of late years at this junc-

PRICES OF BANCA TIN SINCE 1872

		1873	1874	1875	1876	1877	1878		1880.
	Jan. I	8536	70	5734	50	45	4034	3834	5434
1	Feb. 1	8736	70	5636	5036	43%	40	363/4	58%
	Mar. z	84	68	54	50%	43%	40%	40	553/2
	April r	87	53	5×3/2	50	4234	40	43	5234
	May I.	84	57	5034	49	4232	391/2	40%	5034
	June 1.	80	58%	50	4536	4236	39%	39%	4336
1	July 1.	8336	60	503/4	4636	4236	30%	39	49
	Aug. z.	79%	5636	4834	44	4156	3934	3814	56
		79	57	51	43	40%	3714	4136	54%
	Oct. 1.	- 7436	5634	523/4	42%	40%	3534	45	52
ı		7234	58	52%	4436	43		57	34%
Ч	Dec. 1	67%	5836	51	44%	43%	39	56	
ı				-					

AUSTRIA.

AUSTRIA.

(Austrian Trade Journal.)

VIENNA. Nov. 21, 1880.—Iron.—The market here is quiet, but by no meass in as precarious a position as it is generally believed. Hungarian Morchant Iron does not sell as low at Pesth as has been named, 9.25 florins; the lowest price taken at Pesth is 10.75 @ 10.90. Styrian ditto does not sell here for less than 12.50 @ 12.50. The Austrian Combination of Producers of Pig Iron met quite recently, but their resolutions have been kepl secret. We are told a reduction of 6 florins has been determined upon. The Merchant Iron Producers have just met. In Pig Iron not much has transpired, but castings are in better request, and all Hardware in demand at this season of the year moves off satisfactorily. In all other articles in the Iron branch there is only a d. mand from hand to mouth. Our large machine shops complain of a lack of work. Locomotive makers have got but few orders, and employ a reduced number of hands. The Vienna Locomotive Works are making machinery for the navy yard at Pola. Railway car makers are better furnished with commands than the locomotive shops. The export of Hardware is light, and in the Italian market we have to compete with both the Alpine and Hungarian manufacturers at present. The Hungarians beliver Morchant Iron at Trieste at 14 florins per 100 kilos. Local quotations are unaltered here. We quote, on a weak market: Pig Iron, 44 @ 55 florins per ton; Merchant Iron, 105 @ 120.1 Sheets, 160 @ 100, and Pillars, 123 @ 125. deliverable hero. Metala.—Great animation has been noticeable. We quote: Copper, 65 @ 76 florins per ton; Merchant Iron, 105 @ 120.1 Sheets, 160 @ 100, and Pillars, 123 @ 125. deliverable hero. Metala.—Great animation has been noticeable. We quote: Copper, 65 @ 76 florins per 100 illow. Sheets, 100 @ 100 and 11 illars, 123 @ 125. deliverable hero. Metala.—Great animation has been noticeable. We quote: Copper, 65 @ 76 florins per 100 illow. Sheets illow, 100 and 120 animation has been noticeable. We quote: Copper, 65 @ 76 florins per 100 illa

CHILL. (Forrocarril.)

(Ferrocarril.)

Valparaiso, Sept. 24, 1830.—Copper.—After the last mail had left a good demand manifested itself, and large dealings would have resulted if holders had been willing to sell on the basis of a fixed exchange on England. Subsequently cable advices from there became less favorable, loading to some decline; sales 5,187 quintals at \$11.15 \$\mathbb{G}\$\$ \$23.40, with 23\mathbb{G}\$ axchange, 37\mathbb{G}\$ freight per sailing vessel, and 63\mathbb{P}\$ per steamer. Nitrate.

—The Senate has amended the duty to \$1.60 per roo kilos, and returned the bill in this shape to the Chamber of Deputies; if accepted by the latter it will go into operation a fortnight later. The uncertainties surrounding the immediate future of the exchange market have restricted business, sales being limited to 50,000 quintals 05 \mathbb{G}\$ 06 \mathbb{S}\$; Tocopilla and Taital at \$4.41 \mathbb{G}\$ \$\mathbb{A}\$ \$4.4, with 25d. exchange and 37\mathbb{G}\$ \$\mathbb{G}\$ of freight. There were loading at latest dates 35\mathbb{G}\$ so quintals at Iquique. 42,000 at Antofagasta, 70,000 at Tocopilla, and Taital 15,000; (ogether, \$30,00 quintals, of which 64,600 were fer the United States Coal has been in less request. Manchester stoam Coal for the Coast commands \$4\pi\$ per ton and smelting Coal \$10.50 \mathbb{G}\$ to 50.75. Exchange has been appreciating by degrees, private bills bringing, toward the close, as much as 27d., 90 days, on London, per dollar.

sued, but, on receipt of more encouraging advices from both Europe and America, a recovery ensued, and we quote to-day \$26,50, at which rate transactions have occurred at the close. There have been taken for the United States \$500 piculs, and for Iudia and China, 4300, while \$600 piculs were consigned to Singapore to be sold there. The arrivals since September 27 have been 11,000 piculs, of which 2000 are yet to be disp 300 d of. Exchange closes duller after some sales for this mail at 3/9½, 4 months' sight bills.

INDUSTRIAL ITEMS.

MASSACHUSETTS.

The Mason Machine Works, of Taunton, have received orders for 11 of their new locomotives—engine and tender in one; also 100 looms for the Tremont and Suffolk Mills. of Lowell.

The growing prosperity of the Chapman Valve Manufacturing Company is indicated at their factory at Indian Orchard, which is one of the largest and best arranged shops for the manufacture of this class of good the country .- Boston Commercial Bulletin.

Amos Rugg & Son, rake manufacturers of Montague, have bought the J. F. Richard son furniture factory, which has been closed for a number of years, and will use it to ex-tend their present rake business.

CONNECTICUT.

Hopson & Brainard Mfg. Co., Wethersfield, are making a specialty of light and fine iron and brass work. We have lately seen some ornamental iron castings produced (Borsenhalle.)

Hamberaa, Nov. 19, 1880.—Iron.—Our Dortmund correspondent writes, under dates of the 5th and 15th inst., that the tendency there has grown duller week after week. Rolling mills have got the men busy—and some of them may have to be thumbolk Works, near Cologne. discharged recoperatives. The Wire rolling mills complain of a lack of orders, but drawn Wire is in good request. That in the face of this dull aspect prices should decline will cause no surprise. Sheet Iron, it is work in the infoundry which are among the best we have ever seen made in sand. There are medallions in bas relief and ornamental designs in the most delicate openwork. These fine castings, which have a very perfect surface finish, require great eare in molding and pouring, and are not as yet appreciated by the American people; but any progress in that line is gratifying. There is no reason why, with proper encouragement, such of our manufacturers as are favorably situated should not produce as good castings as are made in the Illsenberg foundries. They will are busy in consequence of large demands. in their foundry which are among the best we have ever seen made in sand. There are medallions in bas relief and ornamental de-

never even approach these standards, now-ever, until they give up depending upon foreign patterns, borrowed or stolen, and usually unfit for any use except that for which they were originally made, and turn their attention to original designs. When they can feel a pride and pleasure in what that what comes out of the sand is as per-fect as skill and care can make it. The Hopson & Brainard Manufacturing Com-pany are making an honest effort in the right direction, and some of their work is remarkably satisfactory

The Hartford Cutlery Company, of Tariff-The Hartford Cutiery Company, of Tarif-ville, have completed their new building for forging the blades and forks of the cutlery which they make, and now all forging is done on the premises. The handles are made of glass and clear as crystal, being made at Wheeling, W. Va. A great diffi-culty of drawing the temper in the cutlery in grinding has been overcome by using the ratent vitrified amory wheel made by the patent vitrified emery wheel made by Vitrified Wheel Company, of West

NEW JERSEY.

Prof. George H. Cook, State Geologist, has analyzed five specimens of ore from the Fisher Mine, at Fox Hill, N. J., owned by Mills, Wilsen & Co., with the following re

No. 2. No. 2. No. 3. No. 4. No. Metallic iron..... . \$7.\$0 \$9,\$0 \$9.90 \$56.20 \$7.83 . 0.\$9 0.\$6 0.04 0.02 0.46 . 0.04 0.08 0.008 0.05 trace trace 0.75 0.85 1.90 none none trace trace 0.32 0.32 The owners of the property are about taking measures for its more extensive develop

The new and spacious file and rasp works of Heller Bros., Newark, are now running with a force of 130 men. These works con-sume about 1000 tons of steel per year.

PENNSYLVANIA.

The Wren Patent Grate Bar, manufacured by David S. Cresswell, Philadelphia, is being largely adopted by many leading concerns, the Atlantic Refining Company alone having 4500 bars in use in their refinery. It has also been sent to New England parties, and recently an order was received from Mexico.

Clem & Morse, Philadelphia, are very busy on elevator work, and are sending ele-vators to many distant points, recently to Kingston, Canada, and to several places in

Texas and Louisiana. Stokes & Parrish, Philadelphia, are busy in all their departments, but especially so in elevator work. They are putting both freight and passenger elevators into several large houses in Philadelphia, as also in lead-

ing houses in Detroit, Cincinnati and other prominent Western cities.

The L. B. Flanders Machine Shops are The L. B. Flanders Machine Shops are fully employed on their leading specialties, which may be found in use in almost all the railway shops in this country and Canada. The Pennsylvania Railway Company have in use in their sheps 17 of the Flanders cylinder boring machines, 16 valve-seat planers and seven crank-nin machines.

and seven crank-pin machines. After considerable preparation, attended with heavy expense, the old Isabella Furnace, in West Nantmeal, Chester County formerly owned by the Smith Bros., has been put in good order, and was to have been put in blast on the 6th inst. J. H. Boone's Stony Creek Rolling Mill,

at Norristown, is running night and day, employing about 95 men and turning out about 75 tons of plate iron and 75 tons of muck bar per week. Enough orders are on hand to keep the works busy until next

The West Hamburg Iron Works has suspended work for want of a supply of bituminous coal.

The Chemical Copper Works, of Phoenix-

ville, recently burned, are to be rebuilt. Instead of frame, as heretofore, they will now be built of stone, with iron roof. The combe built of stone, with iron roof. The company are still smelting ores, but doing it in the furnaces with sheds over them. It is feared that the Kutztown Furnace

will have to shut down on account of low Every indication seems to show that the

Lawrence Iron Works, the largest rolling mill in New Castle, has shut down for the winter, if not longer. All the machinery liable to be affected by the weather has been covered up and the glass furnaces beonging to the con roofed over

The property of the Lehigh Zinc Company, in Northampton County, is advertised for sale by the sheriff.

tised for sale by the sheriff.

The Iron Railing and Ornamental Iron
Works, 3026 and 3028 Market street, Philadelphia, have just been reorganized as the
F. O. Hanson Mfg. Co., Limited. The company are fully occupied, running all hands full time and night work, being several weeks behind their orders on wrought iron railing. Their specialty, the hollow oval bar, for use in cemetery inclosures instead of

pipe, is also meeting with a large sale.

The license under which Riehlé Bros. The license under which Kielle Bros. have been building testing machines for some years has expired. These patents are now exclusively applied by Tinius Olsen & Co., Philadelphia. This firm is also building a machine of new design, recently patented. called the "Little Giant Screw Machine," one of which has been thoroughly tested in Pittelwech and after close competition was Pittsburgh, and after close competition was purchased by Shoenberger & Co. of that

Jacob J. Harpel, of Lebanon, has leased the Bernville Foundry and Machine Shops of Wm. Umbenhower and John L. Moyer, the owners, for a term of three and will take possession on the first of April

next.
The new furnace of D. O. Hitner, at Spring Mill, is to start up in a few days, and the new rolling will of Alan Wood & Co., at Conshohocken, will start up about the begin-

never even approach these standards, however, until they give up depending upon Son, John Scott and R. J. Auderson. The

Ingold for 80 electric lights, costing nearly

The Empire Plow Works are busy day and night making plows, plow steels, &c., for the Southern trade. The shipments now

amount to \$1000 per day.

The Pittsburgh Locomotive Works have contracts sufficient to keep the works steadily employed until June next. Their order book shows orders for over 50 engines to be finished within the next six months. The Atchison and Santa Fe road has ordered several 40-ton locomotives, specially designed

for tractive powers.

Porter, Bell & Co.'s light locomotive works, in the Seventeenth ward, have just completed another locomotive for South America similar to the one shipped there

about a year ago.
The Glenwood Steel Works, which have have been suspended for several months past, have been sold to parties connected with the National Tube Works, at McKeesport, and will be put in operation in a short time. It is understood that the intention is to manufacture steel tubing for locomotive and other boilers, and that a portion of the old struc-ture will be removed to give place to a new building.

The Pittsburgh Forge and Iron Company report that their mills are running double time, and that they are pretty full of orders

with fair prospects.

Hussey, Howe & Co. have plenty of orders, are running double turn, and say prospects

are growing brighter daily.

Mr. J. F. Daton, referee in the case of Nimick & Co. against the Ming.) Iron Works Company, of Steubenville, and others, has rendered his decision, holding that the stockholders were liable for the full amount of stock held by them. The total amount of claims allowed is \$144,117.60, and the judgments \$81,950. Among the Pittsburgh firms ments \$81,950. Among the Pittsburgh firms who will profit by the decision are Nimick & Co., \$26,176.96; Williams & Co., \$2,594.22; Wolf, Lane & Co., \$237.27; Fairbanks, Moore & Co., \$232.50; H. C. Frick & Co., \$5,442.66; McIntosh, Hemphill & Co. Co., \$302.60.

W. B. Pollock & Co., Youngstown, are getting in a large quantity of iron for two new batteries of boilers. The following furnaces in Perry County

are running at full blast: Winona, Baird, Gore, Moss and Marshalls, in the Straitsville region, and the New York, Fanny and Double X at Shawnee. All are doing a flourishing business.

Wm. Tod & Co., Youngstown, are building a bell hopper for Andrews Bros.' furnace at Hazleton. This hopper is 14 feet in diameter, the largest in the valley. The Benwood Furnace, at Martin's Ferry,

is now turning out about 60 tons of metal per day. Before its recent rebuilding it averaged about 30 to 35. The buildings for John Hayden's Brass Works at Lorain (not at Elyria as has

been stated) are being rapidly constructed.

A stock company representing \$200,000 has been formed. From 400 to 500 men are to be employed. Mr. Hayden is already getting machinery for the new works.

VIRGINIA.

At the Roaring Run Furnace property, At the Roaring Run Furnace property, Botetourt County, recently purchased by Mr. J. H. Cromwell, of the N. Y. & O. Iron and Steel Co., ore mining is going on, and it is probable that a large force will be kept at work all winter. It is very likely that a charcoal furnace will be started there next season and forges put up for supplying blooms to the Iron and Steel Company.

Company.

Manganese is mined in large quantities on the Franklin Narrow Gauge Railroad, Pitt-sylvania County. Two hundred and fifty men are employed.

WEST VIRGINIA.

Among the companies and associations in-corporated in this State during 1880 are the following: Novelty Glass Company, Wheel-ing; Standard Nail and Iron Company, Clifton: Moundsville Iron Company, Moundsville; Nail City Glass Company, Wheeling. ILLINOIS

The American Tubular Rail Manufacturing Company, Chicago, are about to start a manufactory for the construction of a new patent tubular rail. The incorporators of the company are A. McKenny, president; C. H. Horine, vice-president; R. C. Mel-drum, treasurer, and Wm. S. Brewster, sec-

retary.

The Hercules Iron Works are building a

mammoth bone crusher for the Northwest-ern Fertilizing Company, of Chicago. The shops and yards of the Vulcan Iron Works Company present a scene of unusual activity just now. They have in course of activity just now. They have in course of construction a new steam plow and traction engine for McCray & Co., of this city, and are building a large patent steam pile-driving hammer for the Marquette, Houghton and Ontonagon Railroad Company. As overhanging car pile driver for the C., St. P., M. & O. Railway is nearing completion at these works. Among other orders now under way is a steam dredge and a 32 by 32 marine engine, the former for the South East Land and Canal Company, of Missouri, and the latter for the Peshtigo Company's

new steam tug.—Chicago Industrial World.

The St. Charles File Works are building an addition to their factory and adding ome new machinery.
The old Page Plow Works at Canton are

being turned into a glucose manufactory.
Coal has advanced in Chicago from \$7 to
\$7.50 per ton, and is expected to go up to
\$8.50 within the present month. The cause
of the advance is an apprehension of

Formerly L. & A. G. Coes.

THE LESTER SCROLL SAW



The Lester Saw

Is the most perfect one in use, and embraces a Scroll Saw, Circular Saw, Drilling attachment with drills, Turning Lathe and tools, solid Emery Wheel, Patent Dust Blower, Patent Saw Clamps. Tilting Table, Wrench, Scrow Driver, Designs, extra Saw Blades, &c. It has a black Japan finish with red and gold stripes and nickelplated Table. List price, complete, \$10.

Rogers Saw

Comprises Scroll Saw, Drilling attachment with drill points, Dust Blower, Tilting Ta-ble, Patent Clamps, Wrench, extra Saw Blades, Designs, &c. Finish same as Les-ter Saw. Price, \$3.50.

Cricket Saw.

This Saw has the same general appearance as the Rogers Saw, but is lighter and has no Drilling attachment or Dust Blower. Finish same as the other Saws. Price, \$2. It is by far the best \$2 Saw in the market.

All our Saws are made of iron with steel working parts. No charge is made for boxing.

Millers Falls Co., 74 Chambers St.,

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UNION MANUFACTURING CO.'S Butts. AMERICAN SCREW CO.'S Screws. D. R. BARTON TOOL CO,'S Edge Tools, &c. FRANCE'S Shutter Holders.

FRANCE'S Shutter Holders. Anti-Window Rattiers, Brass and Nickel-Plated. WissTERN FILE CO.'S Cast-Steel Files. AMERICAN SHEAR CO.'S Shears and Scissors, M. MYERS & CO.'S Shovels, Spades and

E. & G. BROOKE'S "Anchor Brand" Nails, Brads,
Spikes, &c.

MALLORY, WHEELER & CO.'S Door and Pad
Locks.

MANUFACTURING CO'S Butts

EXCELSIOR MILLS, Genuine Turkish Emery.
BROWN & BRO.'S Brass and Copper Wire,
Rivets, Spoons, &c.
GAYLORD MANUFACTURING CO.'S Till, Chest
and Cupboard Locks.

AMES' Genuine A Chester Emery.

COLWELL & COLLINS, NORWAY BOLT CO., Norway Carriage and Tire Bolts. PLYMOUTH MILL CO.'S Black and Tinned Iron

Rivets.
AMERICAN MACHINE CO.'S Fluters, &c.
STUART, PETERSON & CO.'S Tinned and En-SCOOPS.
STEEGE & SONS' Wrought Handle Sad Irons.

Ameled Ware, &c.
HUSSEY, HOWE & CO.'S Bar & Sheet Cast Steel.

Also a large line of Heavy and Shelf Hardware.

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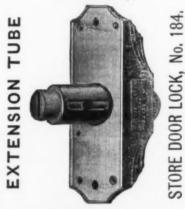
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NATIONAL HORSE NAIL CO., VERCENNES, VT.

DURRIE & McCARTY, Agents, No. 97 Chambers St., New York

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(Successor to Barnes & Deitz,) Manufacturer of Store Door Locks, Night Latches, Padlocks, Drawer Locks, &c., with Flat Steel Keys.



Durrie & McCarty, Agents, 97 Chambers & 81 Reade Sts., New York.

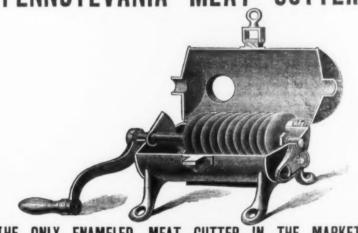
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The back thrust when in use borne by the SHANK instead of the Hand's None genuine unless stamped "L. COES & CO." Worcester, Mass.

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PRICE LIST. No. 1, containing 8 Steel Knives, per dozen. No. 2, 11 12 13 13 14 15 15 15 16 17 No. 20, Enameled for Family Use, with Screw Clamp, to screw on table, per dozen...

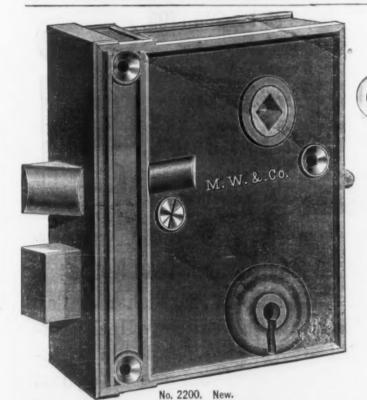
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DURRIE & McCARTY, New York.

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BRONZE DOOR FURNITURE, &c.

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MANUFACTURERS' AGENTS.

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Horse, Mule & Snow Shoes of the Perkins Pattern. Works at Valley Falls, R. I., and Buffalo, N. Y. Office, 31 Exchange Place, Providence, R. I. C. H. PEREINS Gon'l Manager. B. W. COMBTOCK, Secretary. | Sole Agents. W CARPENTER President.

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Superior to any in market. Send for prices and samples. A. BUSSING, General Agent,

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Chilled Hay Fork Pulleys.

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FOR HOME AND EXPORT TRADE,

New York Underground Railway.

The Consolidated Underground Railway Companies promise to finish seven miles of a subterranean highway in season for the great World's Fair of 1883, or two years from the 1st of June next. They have specifications of the work all complete, to be submitted to contractors a short time hence. Under their Chief Engineer, Walter J. Morris, the draughtsmen have been busy for the past five months, pending legislation at Albany and proceedings in the courts re-lative to right of way. As a final step, ap-plication has been made to the Supreme Court for the appointment of commissioners to decide upon the location of that part of the route between the City Hall Park and the route between the City Hall Park and Union Square; but they regard themselves as in possession of undisputed right of way from the Battery to Central Park via what is known as the Mulberry street route, irrespective of any action which may be taken by the commissioners. The first preference, of course, is for the Broadway route, which is more direct, and they promise to build the underground railway without in the least obstructing surface travel. They will lay heavy cross timbers, supporting the will lay heavy cross timbers, supporting the same by three tiers of posts, the lowest extending to a depth of 24 feet, and on this foundation will lay a solid plank road wherever it is necessary to break the surface. This part of the work will be done at night with the aid of electric lamps. The total extent of plank road will be about two-thirds of a nile. Estimated cost per mile, \$2,500,000.

The tracks will all be of steel, laid through

The tracks will all be of steel, laid through adjoining tunnels separated by a wall of masonry, and they will rest on plates formed of German asphalt, which are said to effectually counteract the effects of vibration, thereby rendering the movement of the trains noiseless. The main tunnel will be arched with brick, while the stations have a ceiling of iron beams, filled in between with masonry. The average dimensions of the underground passageway will be 12 feet in breadth by 15 feet in hight, though at the stations the excavations will expand into handsome chambers, laid with platforms of marble or encaustic tile, none of which will be less than 350 feet in length. The greatest depth below the surface will be 21 feet, at the City Hall station. All the stations will have electric light. The cars will be on the compartment plan, each to have a door on either side, so that passengers can enter or alight instantly.

To the dead load, and as hereinafter specified. The main columns or pillars to be wrought iron, when their diameters are not greater than 1-2,th part of their length, may sustain 8000 pounds to the square inch; and when their length is in a greater proportion to the part of the line of the beams above the line of top of beams. The beams to content, and prove the line of top of beams. The beams to rest upon iron plates laid upon a ble ck of bluestone 5 inches thick, the entire outside of roof to be filled in and leveled up with concrete to a surface averaging 4 inches to rest upon iron plates laid upon a ble ck of bluestone 5 inches thick, under each end of the beam and on the dividing wall.

All of the main beams of the tunnel and stations to be of wrought iron, either rolled or plate beams, as shown by the drawing or directed by the engineer of the company, of not less than 50,000 pounds tensile strength to the square inch, to have a factor of bafety of six for the live load and three for the dead load, and as hereinafter specified. The main columns or pillars to be wrought transpired to the fill of t

A special feature is the provision for ventilation. The London roads have a double track in a single tunnel, but the absence of any provision for driving out foul and admitting fresh air is a radical defect. In the New York Underground Railway, besides ventilating shafts, the locomotives will be provided in the rear of the smokestack with a sort of flange or plunger, approximately filling the passage and sweeping the atmosphere from end to end.

The iron used will comprise 6600 tons of

atmosphere from end to end.

The iron used will comprise 6600 tons of wrought, of which 6000 is for beams and the remainder for columns; and, in addition, 300 tons of east, principally for caps.

The figures for lumber and brick look still

more formidable.

The following points are designated as stations: The Battery, Wall street, City Hall Park, Leonard, Grand and Bleecker streets, Astor place, Union and Malison squares, Thirty-fourth, Forty second, Fifty-third and Fifty-ninth streets. From Twenty-third to Fifty-ninth street preparatory intermediate stations are formed, requiring only the removal of masonry in order to connect with the surface.

Below we submit details of specifications for the down-town divisions of the turnel, which will serve to indicate the character

for the down-town divisions of the turnel, which will serve to indicate the obsracter of the entire work, excepting at Canal street, where it is possible that piles as well as a coffer dam will be necessary. Provision is made for the water and gas pipes above the roof of the tunnel, while the sewer is divided into lateral branches to the right and left.

right and left : SPECIFICATION.

The railway to be constructed through two adjoining tunnels separated by a wall of masonry. The main and greater part of the length of the tunnel to have a roof of arched brick masonry, and such other parts of the tunnel and stations as may be found ad-vantageous to be constructed with a flat roof,

consisting of iron beams arched in with brick masonry. When it is necessary to construct the tunnel by boring through the crown of the arch of each tunnel control of the crown of the control of the conter of grade, and at a point 1 foot of inches above the center of grade, and at a point 1 foot of inches above the center of grade to be 6 feet 1½ inches from said center to dividing wall; at 12 feet above the center. The clear width of each tunnel to be 6 feet 1½ inches from said center to dividing wall; at 12 feet above the center. The clear highly above center of grade to be 6 feet on each side of the center of grade to be 16 feet on each side of the center of grade to the clear highly above center of grade to the service of the arch to be 15 feet. The dividing wall grade to be 26 feet in width of each tunnel to be 6 feet on each side of the center. The clear highly above center of grade to the real wall and 16 feet of inches below grade; the necessary to consist of an inverted arch 4½ inches thick to propring, and the second to be 15 feet in the dividing wall feet in the dividing wall to have two courses of blue and 16 feet from centers of openings. All the second to the sphalt covering the concrete foundation, as have grade line and forming a coping at the spring of the arch, and 1 feet from centers of openings, and the second to be 1 foot above grade in the asphalt covering the concrete foundation, as have of the work require a substructure, spruce to the center to center, and to be of such municature por the calculation which has been put upon the samples when has easily were and a feet from center center to center, and to be of such municature ports to be carried to the interection the interection of the interection the interection to the intere

Concrete to be carried up 9 inches thick on the outside of the abutments about parallel to the brickwork, and on a prolongal to the brickwork, and on a prolongation of these lines, to 3 feet 6 inches above the substructure will be applied. Ballast to be laid along the entire line not the spring of the arch; thence by a curved line to a point 6½ inches above the crown of the arch; thence over and along the arch to a point 7 feet 4 inches over the springing line of the dividing wall, and forming a junction of the concrete of the two tunnels over the dividing wall. From the crown of the arch of each tunnel, concrete to be carried to the intersection of the inclined lines

from the haunches of each tunnel, the intervening space to be filled in with fragments of stone well bedded in cement mortar. A layer of asphalt 3% inch thick to be placed upon the concrete over the abutments and roof of the tunnel.

The clear width of each beam tunnel at grade line to be 6 feet 1½ inches from center of grade to outer wall, and 6 feet 8 inches from center of grade to dividing wall; and at a point I foot 6 inches above the said center to be 6 feet 1½ inches from center to outer wall and 6 feet 10 inches from center to dividing wall, and at 12 feet above the grade the clear width of each tunnel to be 6 feet 1½ inches from center to dividing wall, and at 12 feet above the grade the clear width of each tunnel to be 6 feet 1½ inches from center to outer wall, and 6 feet to inches from center to dividing and 6 feet 10 inches from center to dividing wall. The clear hight from the center of grade to the bottom of roof beams to be 15 feet. The dividing wall at grade to be 22 inches thick, and thence up 18 inches above grade; thence 18 inches thick to bottom of grade; thence is inches thick to bottom of roof beam. Longitudinal arched openings to be left in the dividing wall in feet in width and no feet in hight and 20 feet from centers of openings. The dividing wall to have three courses of bluestone, 5 inches thick. The first to be I foot above grade and forming a coping at base of openings: and forming a coping at base of openings; the second to be about midway between the first course and the spring of the longitud-inal arch. The walls of the beam tunnel to half arch. The walls of the beam tunnel to be of brick masonry, 4 feet ½ inch thick at base and 3 feet thick at the line of the bottom of the roof beams; to be well filled in between with masonry, and to the top of the beams.

The roof of the beam tunnel to be formed of iron beams placed 5 feet apart, center to center, at right angles to the line of the road; to be arched in between with brick masonry 13 inches thick, the entire outside of roof to be filled in and leveled up with

than r-2.4th part of their length, may sustain 8000 pounds to the square inch; and when their length is in a greater proportion to their diameter, then the pressure on each square inch of metal shall not be greater

than as given by Gordon's formula.

Concrete 6 inches thick to be placed along the entire outside of the walls, about parallel to the brickwork, up to and over the upper and outer ends of the beams. The con-

rete on the outside of walls and roof of the beam tunnel to be covered with a layer of asphalt 1/4 to 3/4 inch thick.

The clear width of each tunnel through rock at grade to be 6 feet 1/4 inches from the center of grade to abutment, and 6 feet 1/4 inches from center of grade to dividing 11½ inches from center of grade to dividing wall, and at a point 8 feet 3 inches above the said center to be 7 feet 4 inches from said center to abutment, and 7 feet 3 inches from said center to dividing wall, and at 12 feet above grade the clear width of each tunnel to be 6 feet 3 inches on each side of center. The clear hight above center of grade to the rise of the arch to be 15 feet 6 inches. The dividing wall at grade to be 4 feet to 4 feet 6 inches thick, and thence up 5 inches; thence to spring of arch 3 feet to 4 feet. Longitudinal arched openings to be left in the dividing wall 6 feet — inches in width, 7 feet — inches in hight, and 18 feet to 24 feet from centers of openings, according to pressures 111/2 inches from center of grade to dividing — inches in hight, and 18 feet to 24 feet from centers of openings, according to pressures sustained. The dividing wall to have three courses of bluestone, 5 and — inches thick. The first to be at grade and forming a coping at base of openings; the second to be about midway between the first course and the spring of the longitudinal arch; the third to be at the spring of the longitudinal arch. The abutments and arch to be from 22 to 27 inches thick at base, and the same to spring of dividing wall. o spring of dividing wall.

The spaces between the rock and the sides of the tunnel to the spring of the arch to be well filled in with spawls, and rammed and covered over with concrete to the same brick masonry, and such other parts of the tunnel and stations as may be found advantageous to be constructed with a flat roof, consisting of iron beams arched in with brick masonry. When it is necessary to construct the tunnel by boring through the rock, the cross section will be a modified form of the main arched tunnel.

The clear width of each arch tunnel of the inclined lines from the intersection of the inclined lines from the launches of each tunnel dispursion.

American Locks at the Paris Exhibition.

In his very interesting report on the exhibits from Connecticut at the Paris Exhibition of 1878, Prof. Wm. P. Blake, Honorary Commissioner of the United States, gives the following information about the locks

commissioner of the United States, gives the following information about the locks the schibited by Mallory, Wheeler & Co.

This firm, established since 1834, manufacture exclusively door locks, padlocks, door knobs, and bronze trimmings for doors. They make this description of goods their specialty, and bend their energies to the improvement and cheapening of the objects. They sent a large selection to Paris, using the same large show case, 26 feet long by 15 feet high and 2½ feet wide, that they had at the Centennial. The exhibit was taken to Paris by the company's agent, Mr. Elliott Littlejohn, and was the first installation completed in the United States section. Upwards of 500 different samples were displayed in this case, all of them arranged upon a smooth black ground of bird's-eye maple veneering. There were some 400 locks and about 50 different styles of padlocks.

This display of locks of so many different

locks. This display of locks of so many different styles, and all of them so accurate in workmanship and moderate in price, attracted great attention from the French and others unaccustomed to the manufacture of locks, on a large scale by machinery and of castiron chiefly. Most of the European locks are made by hand, unaided by automatic machinery, and the sizes and varieties are few compared with ours. The interchangeability of parts, or rather the production of ability of parts, or rather the production of large numbers of any one part each so exactly similar to the other that one might at any time be substituted in the mechanism instead of the other, as is the cast and machine-made locks, was a feature which elicited many commendations from members of the

The "hotel lock," one of the specialties of this company, was another novel and somewhat surprising feature of the exhibit. In these locks, which are apparently all alike, the keys are not interchangeable. Each lock requires its proper key, so that in a house, we will say with 140 locks and lock requires its proper key, so that in a house, we will say with 140 locks and keys for as many rooms, no two keys can be found that will open the same lock, while a single master key is applied that will open all. These locks are marvels of mechanical skill and are very cheap, considering the accuracy of the work and internal mechanism. They are supplied in sets of from 50 to 140, and are safe as against any of the keys except that fitted to each lock separately, and the master key, which will pass all.

The reversible door locks for either right or left hand doors were also an interesting novelty to most of the fereign visitors. This lock is so made that by simple pulling the latch bolt forward and turning it half way round the sloping surface of the latch is turned in the opposite direction, thus adapting the lock to any door opening right or left. This can be done by the joiner when fixing the lock on the door, and with-

when fixing the lock on the door, and with-out in any way deranging the mechanism of the lock. It readjusts itself as soon as the turn is made. When fixed to the door the latch cannot be again reversed without

the latch cannot be again reversed without dismounting the knob and withdrawing the spindle. It is thus secure from accidents due to meddling.

The result is accomplished by means of a movable yoke on the spindle, which yoke is held securely in its place by the spindle when inserted, bearing against the end of the pin shown on the right. This pin prevents the latch being drawn forward while the spindle is in its place. When it is removed the pin is free to move, and thus permits the yoke to be drawn forward far enough to allow the square head of the latch to extend beyond the case and to turn around. The little he case and to turn around. The little the case and to turn around. The little spiral spring around the pin serves to draw the yoke back to its place and with it the pin, leaving the socket free for the insertion of the spindle. The mechanism is thus automatically readjusting, requiring no effort or care on the part of the workman. All the parts readjust themselves, and none of the mechanism is displaced. This and the simparts readjust themselves, and aone of the mechanism is displaced. This and the simplicity of the contrivance is the basis of a strong claim for superiority by the manufacturers, who challenge comparison and trial with any other form of reversible latch.

Messrs. Mallory, Wheeler & Co. were the first to manufacture padlocks extensively in the United States. They now make over

ous pumps of Douglas had the named filed out, and were shown as a foreign product. Such frauds are too odious and open to detection to be common. They are, nevertheless, a tribute to the superiority of American hardware, and will go far in dispelling the plausible objections raised in some quarters to the importation and use abread of our

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WE DESIRE TO CALL your attention to the fact that we guarantee every bar of our 1.2 & 1.2 Solder to contain equal parts of Tin and Lead. We will make no charge for Solder, and will defray all expenses attached to the shipping of same, if it is not as guaranteed. We decline to offer our Solder in competition with houses not willing to make the same guarantee. The market is flooded with a so-called "1-2 & 1-2" Solder, which is being offered actually below the cost of the raw materials. As to its true quality, comment is unnecessary. We will be pleased to quote for any mixture of Solder that may be required, guaranteeing the proportions. If you have not already used our Solder, we will be pleased to receive an order for a sample lot.

MERCHANT & CO.,

PHILADELPHIA.

Office of NELSON LYON

SOLE MANUFACTURER OF LYON'S PATENT

METALLIC

Heel Stiffeners.

BRUSHES,



That my suit against G. F. Fisher & Co., Detroit, Mich., for infringing my Heel Stiffener Patent was this day decided in my favor, and perpetual injunction granted against

NELSON LYON.



Patented August 27, 1878.

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'RAPID TRANSIT' TRAP Has no superior, and is a sure and certain catcher of Mice. With the Metal Platform resting on wood bottom of Trap, an invitation is always extended to Mice of whatever "kind, color or condition of race," into secure and grated quarters, from which they are released by opening cover of Trap and depositing contents into a pail of

The Mice so in at a rapid rate,

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Coulter, Flaster & Co., 37 Chambers, N. Y. 9 Cowles Hardware Co., Union/lile, Conn. 23 Enterprise Mgr. Co., Phila. 27 Globe Mg. Co., Middletown, Conn. 27 Globe Mg. Co., Middletown, Conn. 7 Lobel Hardware Co., 19 Beekman, N. Y. 22 Lobel Hardware Co., 19 Chambers, N. Y. 27 Perin & Gaff Mgr. Co., Cincinnati, O. 31 Khannon J. B. & Sons, Philadelphia, Pa. 10 Shepard Hardware Co., Buffalo, N. Y. Stanley Works, New Britain, Conn. 8 Stanley Works, New Britain, Conn. 8 Trenton Lock & Hardware Co., Trenton, N. J. 22 Union Mg. Co., 52 Chambers, N. Y. 37 Van Wagoner & Williams, & Beekman, N. Y. 38	1
Trenton Lock & flardware Co., Trenton, N. J	
Hardware Specialties.	
Che'estand Wroment Fron Fence Works, Cieveiand, O 7 Comity James, Philadelphia, Fa	
Shepar: Sidney & Co., Buffalo, N. F	1
Harness Snaps. Covert Mfg. Co. West Troy, N. Y	1
Kimpertin R. P. & Co., Indianapolis, Ind	1
Hektograph Co., 22 Church N. Y31 Hektograph Co., 22 Church N. Y31 Heel Stiffeners.	1
Lyon Nelson, Albany, N. Y	1
Scovill Mrg. Co., 419 Broome, N. Y	1
Holating Engines, Makers of. Crane Bros., Mfg. Co., Chicago, Ill	1
	1
Box Alfred & Co., us Green, Phila	1
Hooks (Cotton & Bale.) New York Handle & Mallet Works, 456 E. Houston13	9
Boker Hermanr & Co 101 & 103 Duane, N. Y. 28&20 Shannon J. J., Philadelphia, Pa	P
Ausable Horse Nail CO. 1 Warren, N. Y. 25 Bridgewater Iron Co. Bridgewater, Mass. 25 EP Nail Co. Cleveland, O. 25 National Horse Nail Co., Vergennes, Vt. 21 Saranae Horse Nail Co., Plateburg, N. Y. 12	B
National Horse Nail Co., Vergennes, Vt	B
Horse Shoes, Makers of. Bradlee & Co., Phitadelphia, Pa	
Rhode island Horse Shoe Co., Providence, R. I21 Schoenberger & Co., Pittsburgh, Pa	0
Het Blast Stoves. Witherow & Gordon, Pittsburgh, Pa	0
Hydrants, &c. McLean John, 200 Monroe, N. Y	0
Dudgeon Richard, 24 Columbia, N. Y	
ce Cream Freezers. White Mountain Freezer Co., Laconia, N. H 8 nsurance, Boiler. Hartford Steam Roller Inspection & Insurance Co. 22	O F
nsurance, Boiler. Hartford Steam Boiler Inspection & Insurance Co 37 Insurance. Life. The Travelers' Life and Accident Insurance Co., Hartford Conn.	F
ron. (Manufacturers' Agents.) Cox. Jr., Justice & Co., 333 Wainut, Phila	P
ron. (Manufacturers' Agents.) Cox. Jr. Justice & Co., 33 Wainut. Phila. 5 Roffman J. W. & Co., 205 S. 4th, Phila. 5 Levis Henry & Co., Philadelblin, Phila. 5 Lundel Chas. G. (Swedish), Boston, Mass. 4	P
Albany & Rensselaer Iron & Steel Co., Troy, N. Y. 30 Allentown Rolling Mill Co., Allentown, Pa 5	
Fon. Manufacturers of Steel Co., Troy, N. Y., 30 Albany & Rensselaer Iron & Steel Co., Troy, N. Y., 30 Allentown Rolling Mill Co., Allentown, Pa. 5 Britton Iron and Steel Co., Cleveland, Ohio. 6 Burden Iron Works, Troy, N. Y. 4 Burden Iron Works, Troy, N. Y. 4 Kirknetrick & G. Pittsburgh Pa. 4 Kirknetrick & G. Pittsburgh Pa. 4 Lang W. Balley, to Beekman, N. Y. 4 Logan Iron & Steel Co., Philadelphia, Pa. 5 North Chicago Rolling Mill Co., Chicago, III. 37 Phoenix Iron Co., 4to Walnut, Philadelphia, 34 Phoenix Iron Co., 4to Walnut, Philadelphia, 34	P
Kloman Andrew, Pittsburgh, Pa	
North Chicago Rolling Mili Co., Chicago, Ill31 Phœnix iron Co., 410 Wainut, Philadelphia4	P

THE IRON AG	H
Iron Brokers.	1
Boynton Geo. A., 70 Wall, N. Y	
Iron Brokers. Boynton Geo. A., 70 Wall, N. Y. Etting Edward J., Philadelphia, Pa. Gallaudet P. W., 3 & 5 Wall, N. Y. Hatry A. G., Pittsburgh, Pa. Jron, Charconi, Warm or Colic Blass. Lundell Chas. G. (Swedish, Boston, Mass. Quincy John W., 53 William N. Y. Iron Commission Merchanus. Balley J. F. & Co., 52 Wall, N. Y. Heberton & Co., Philadelphia Lundell Chas. G. Boston, Mass. 4 wister L. J., 430 Walnut, Philadelphia Richardson J. O., 22 Dock, Philadelphia Kichardson J. O., 23 Walnut, Philadelphia Kichardson J. O., 25 Wall, N. Y. Abeel Brochers, 100 South N. Y.	
Lundell Chas. O. (Swedish), Boston, Mass Quincy John W., o3 William N. Y.	1
Balley J. F. & Co., 52 Wall, N. Y. Heberton & Co., Philadelphia	1
Lundell Chas. G., Boston, Mass. 4 Mohr J. J., 430 Walnut, Philadelphia Richardson J. O., 222 Dock, Philadelphia	
Richardson J. O., 22 Dock, Philadelphia Wister L. & R., 232 Walnut Phila. 170n Benlers. Abeel Brothers, 190 South N. V. Adams High W., 66 File, N. Y. Bonnell, Botsford & Co., Youngstown, O., 6 Carmichael & Emmens, 120 and 121 Cedar, N. Y. Cooley Daniel F., 88 Washington, N. Y. Egleston Bros & Co., 160 South, N. Y. Harrison & Gilloon, 58 to 56 Water, N. Y. Hoffman J. W. & Co., 268 S. Fourth, Philadelphia. Judon B. F., 47 and 450 Water, N. Y. Hoffman J. W. & Co., 268 S. Fourth, Philadelphia. Judon B. F., 47 and 450 Water, N. Y. Kana C., Pittsburgh, Pa. Lissberger S. A., 29 E. 16th, N. Y. Lundberg Gustal. 38 Killiy, Boston, Mass. Lundberg Gustal. 38 Killiy, Boston, Mass. Midleston W. S., 52 John, N. Y. Ozden & Wallace, 85, 87, 80 and 01 Elm, N. Y. Pierson & Co., 26 Broadway, N. Y. Puilman J. Wesley, Philadelphia, P. Quincy John W., 98 William, N. Y. Richards D. W. & Co., 20 Mangin, N. Y. Williamson James & Co., 40 Watl, N. Y. Williamson James & Co., 69 Wall, N. Y. Williamson James & Co., 69 Wall, N. Y. Williamson James & Co., 60 Wall, N. Y. Williamson James & Co., 9 Wall, N. Y. Wheeler E. S. & Co. N. Glibburgh Pa. Wheeler E. S. & Co. O., 9 Wall, N. Y. Wheeler E. S. & Co., 9 Wall, N. Y. Wheeler E. S. & Co., 9 Wall, N. Y. Wheeler E. S. & Co., 9 Wall, N. Y. Wheeler E. S.	1
Adams Hugh W., 6 Pine, N. Y. Bonnell, Botsford & Co., Youngstown, O	
Carmichael & Emmens, 120 and 12 Cedar, N. Y	1
Egleston Bros & Co., r6o South, N. Y. Harrison & Gilloon, 558 to 55; Water, N. Y. Hoffman I. W. & Co., 268 S. Fourth, Philadelphia)
Judgon B. F., 457 and 459 Water, N. Y. Kane C., Pittsburgh, Pa.	1
Lundberg Gustaf. 28 Killiy, Boston, Mass 4 Lundell Chas. G. (Swedish), Boston, Mass	
Mithesen & Grant, 32 Walbrook, London, Eng 16 Middleton W. S., 52 John, N. Y	
Orden & Waliace, 85, 87, 89 and or Elm, N. Y	1
Quincy John W., 98 William, N. Y. Richards D. W. & Co., 92 Mangin, N. Y.	
Swan John E. & Bros., Glasgow & Middlesbrough. 6 Wallace Wm. H. & Co., Albany and Washington	
Warner A. B. & Son, 28 and 20 West, N. Y. Williamson James & Co., 69 Wall, N. Y.	1
Wilson, R. A. & Co., Pittsburgh Pa	1
Clark E. W. & Co., Philadelphia, Pa	
Wheeler E. S. & Co., 54 Cliff, N. Y. Williamson James & Co., 65 Wall, N. Y.	
Iron. Sheet. Manufacturers of. Summers John & Sons, Stalybridge, England	1
Wood W. D. & Co. Pittsburgh, Pa. 4 Iron Stable Fixtures. Howard & Morse, 4; Fullon, N. Y. Lanterns. Manufacturers of. Dietz R. E., 54 and 6; Fullon, N. Y. Howard & Morse, 4; Fullon, N. Y. Miller Edw'd & Co., 35 Warren, N. Y. Lathe Dogs. Coles H. H. & Co., Philadelphia, Pa. 33	1
Lanterns, Manufacturers of. Dietz R. E., 54 and 56 Fulton, N. Y	1
Miller Edw'd & Co., 35 Warren, N. Y	1
Lathe Dogs. Coles H. H. & Co., Philadelphia, Pa	1
Jennings C. E., of Chambers, N. Y	1
Jevelie. Disson Henry & Sons., Philadelphia	
Coutter, Flagler & Co., 87 Chambers, N. Y	
Hillebrand & Wolf, 110 S. Stn. Philadelphia	1
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Manchellery, Mancra Qr.	1
Box Alfred & Co., 312 Green, Phila	
Garvin E. E. & Co. 130 Center, N. Y	
Landis Ezra F., Lancaster, Pa	
Monawk & Hudson Mfg. Co., Waterford. N. Y	
Sellers Wm. & Co., Phila. and 79 Liberty st., N. Y. 37 Stokes & Parrish, Philada. Pa.	
The Stiles & Parker Press Co., Middletown, Ct 3 Wetherfil Robert & Co., Chester, Pa	1
Little Chas. E., to Fulton, N. Y	1
Akron Iron Co., Akron, O., 26 dilsa & Williams for Plymouth, Brooklyn. 28 Box Alfred & Co., 212 Green, Phila. 27 C oke Wm., 6 Cortland, N. Y., 32 Porsatth S. C. & Co., Manchester, N. H. 37 Garvin E. E. & Co., 192 Center, N. Y., 23 Garvin E. E. & Co., 193 Center, N. Y., 26 Landis Ezra F., Lancaster, Fa., 193 Landis Ezra F., Lancaster, Fa., 23 Lyon E. & Co., 473 Grand, N. Y. Monawk & Hudson Mfz. Co., Waterford, N. Y., 26 Monawk & Hudson Mfz. Co., Waterford, N. Y., 26 Oram & Atherton, Cleveland, O., 48 Pittsburgh Mfg. Co., Pittsburgh, Pa., 38 Selters Wm. & Co., Phila, and 79 Liberty st., N. Y., 38 Selters Wm. & Co., Phila, and 79 Liberty st., N. Y., 38 Stokes & Parrish, Philada, Ph. The Stiles & Parker Fress Co., Middletown, Ct., 37 Wetherful Robert & Co., Chester, Pa., 37 H. Chine, Ph. 19 H. Chine, Ph. 20 H. Chine, Ph. 30 H. Chin	1
Blaisdell P. & Co., Worcester, Mass	1
Waterbury Mr. Co., Waterbury, Conn. Machinists Tools, Blaisdell P. & Co., Worcester, Mass. Blaisdell P. & Co., Worcester, Mass. Brooks A. 3. & Wineer, ner, Philadelphia, Pa. 16 Bullard E. F. 11 Dey, N. Y. 16 Cooke Win., 6 Cortland N. Y. Geo. Place Machinery Agency, 121 Chambers N. Y. 36 Geo. Place Machinery Agency, 121 Chambers N. Y. 36 Harrington E. & Son, 15th st. and Pennsylvania ave., Philadelphia Pa. J. Gray Machinery Depot, 37 Dey, N. Y. 16 Kinz J. M. & Co., Waterford, N. Y. 6 Marcellus C. N. & Co., 91 Liberty, N. Y. Seliers Win. & Co., Phila. and 79 Liberty st., N. Y. 37 Stockwell Screw & Machine Co., Cleveland, Ohio., 36 Maliets.	
Harrington E. & Son, 15th st. and Pennsylvania ave., Philadelphia Pa.	
Kinz J. M. & Co., Waterford, N. Y	1
Sellers Wm. & Co., Phila, and 79 Liberty st., N. Y. 37 Stockwell Screw & Machine Co., Cleveland, Ohio. 36	
Penfield Block Works, Lockport, N. Y 30	
Eddy Geo. M. & Co., 353 Classon Ave. Brooklyn N. V. 16	. 1
Ment Cutters. Kimball Shovel Co., Baltimore, Md	1
Murray Iron Works, Burtington, Iowa	1
Dickerson, Van Dusen & Co., 29 and 51 Cliff. N. Y Goldsmith Moses & Son. Charleston. S. C 6 Naylor & Co., 99 John. N. Y 8 Northrop A. C., Waterbury, Conn 2 Phelps, Dodge & Co., Cliff. bet. John & Fulton, N. Y. 2 Phosphor Bronze Smelting Co., Limited, 2038 Washington av. Phila.	
Northrop A. C., Waterbury, Conn. Phelps, Dodge & Co., Cliff, bet. John & Fulton, N. Y. 2	١.
Phosphor Bronze Smelting Co., Link, oet, John & Witton, N. Y. 2 Phosphor Bronze Smelting Co., Linkined, 2038 Washington ev., Phila	9
Quincy J. W., 98 William, N. Y. Read D. W. R. & Co., 2054 Walnut, Phila	
Starr John. Halifax, Nova Scotia	
Metals, Perforated Sheet. Harrington & Oglesby, Chicago, Ill	
Metallurgists. Booth, Garrett & Blair, 519 Chant, Philadelphia 5 Britton J. Biodgett, 330 Walnut, Philadelphia24 Mica.	
Peckham J. S. & M., Utica, N. Y	1
Mine Lamps. Leonard Brot. Scranton. Pa	1
Mineral Wool. Elbers Alexander D., 261/6 Broadway, N. Y	
Molasses Gates. Kimball Shovel Co., Baltimore, Md	
Molding Sand. Whitehead Bros., 517 W. 15th, N. Y	
Mouse Traps. Dietz R. E., 4 and 5 Fulton N. Y. 33 Jones Claudius & Co., Erie, Pa. 12 Ripley Mrg. Co., Unionville, Conn. 21	-
Fuller Bros. & Co., 120 Greenwich, N. Y. Oxford Iron Co., 81 Washinston, N. Y. Kowland Jas. & Co., 520 N. Deiaware, Ave., Phila. Sehoenberger & Co., Pittsburgh, Pa. Zing & Co., Pittsburgh, Pa. 4	
Pittsburgh Mfg. Co., Pittsburgh, Pa	П
Patti Machinery Pittsburgh Miz. Co., Pittsburgh, Pa	П
Zucker & Levett, 540 to 541 West 10th 8t. N. Y	Н
Rowland Wm. & Harvey. Frankford, Philadelphia.38 Nuts. Bolts, etc., Makers of.	1
Allentown Rolling Mill Co., Allentown, Pa 5 Haskell W. H. & Co., Pawtucket, R. I	
Nuts. Bolts. etc., Makers of. Allentown Rolling Mill Co., Allentown, Pa. 5 Haskell W. H. & Co., Fawtucket, R. I. 5 £tussell. Burdsall & Ward. Port Choster, N. Y. 38 Standard Nut Co., Pittsburgh, Pa. 35 Sternbergh J. H., Reading, Pa. 35	
Belmontyle Oil Co., 150 Front, N. Y	
Boyd & Chase, 107th and Harlem River. N. Y 30	
Ores. Jackson Iron Co. Cleveland, O	
Jackson Iron Co Cleveland, O	1
Greenfield Tool Co., Greenfield, Mass	-
Packing. Akron Rubber Co., Akron, O	
Howson & Son. Phila. and Washington, D. C25	
Pattern Letters and Figures. Knight H. W., Scheca Falls, N. Y	
Esterbrook Steel Pen Co., New York	
Phosphor Bronze Smelting Co., Limited, 2023 Washington ave. Philadelphia	
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Pipe, Water and Gas, Makers of.	

Mellert Foundry and Machins Co., Limited, Reading, Pa. 19.

Reading Iron Works, Philadelphia, Pa. 5.

Wood R. D. & Co. 400 Chestmut, Philadelphia. 13.

Wyckoff A., Elmira, N. Y. 29.

Plane Irons, Manufacturers of.
Buck Bros., Milbury, Mass. 11.

Greenfield Tool Co., Greenfield, Mass. 10.

Planes. Manufacturers of.

Greenfield Tool Co., Greenfield, Mass. 10.

Lafin Mg. Co., Weatheld, Mass. 10.

Stanley Rule and Level Co., 29 Chambers, N. Y. 3.

	Plated Ware.	Steel Importers.
6	Plated Ware. Hall, Elton & Co., 7s Chambers, N. Y	Steel Impor-rs. Carr J. & Riley 3g Gold, N. Y. Hobson Francis & Son, of John, N. Y. McCov & Co., 134 and 126 Duane, N. Y. Pierson & Co., 24 Broadway, N. Y. Wolff, Kahn & Co., 46 Cliff, N. Y. Steel (Musher's Special. Lous R. M. & Co., 1 and 13 Cliver Poston Macs.
	Plumbers' Materials, Manufacturers of.	McCov & Co., 134 and 136 Duane, N. Y
	Everhart Jas. M., Scranton Pa38	Wolff, Kahn & Co., 46 Cliff, N. Y
4	Packet Knives. Boker Hermann & Co., for Duaue, N. V	Jones B. M. & Co., 11 and 13 Oliver, Boston, Macs. 30
4	Ideal Coffee Pot Co., Philadelphia, Pa	Jones B. M. & Co., 11 and 13 Oliver, Eoston, Macs. 30 Steel Minulacturers. Albany & Rensselaer Iron & Steel Co., Trop. N. Y. 19 Atha, Benjamin & Co., 211 Pearl, N. Y. 10 Cleveland Rolling Mill Co., Cleveland, O. 17 Cleveland Rolling Mill Co., Cleveland, O. 17 Cleveland Rolling Mill Co., Cleveland, O. 17 Mildvale Steel Works, Nicasway P. In., 17 Mildvale Steel Works, Nicasway P. In., 17 Mildvale Steel Works, Nicasway P. In., 18 Mildvale Steel Works, Nicasway P. In., 18 Mildvale Steel Works, Nicasway Mildvale Steel Works, Nicasway Mildvale Steel Works, Nicasway Mildvale Steel Works, Nicasway Mildvale Forge, Philadelphia, Pa. 6 Rolling Mildvale Forge, Philadelphia, Pa. 6 Rowland Wm. & Harvey, Frankford, Phillo. 23 Sanderson Geo. & Co., so Gold. N. Y. 5 Singer, Smirick & Co., Pittsburgh, Pa. 5 The Edgar Thomson Steel Co., 57 Broadway, N. Y. 5 The Steel Co. of Scotland, 27 Pine, N. Y. 5 Wardlow S. & C., Shemield, Eucland. 5 Wardlow S. & C., Shemield, Eucland
5	Purvis R. C., Philadelphia 25 Power Hammers.	Atha, Benjamin & Co., 211 Pearl, N. Y
4	Power Hammers. Bradley & Co. Syracuse, N. Y. Dienelt Eisenhardt & Co., Philada, Pa. 30 Presses, Fruit and Vegetuble. Mohavk & Hudson Mfs. Co., Waterford, N. Y. 25 Presses. Power. Makers of. Bitss & Williams. 16 Pirmouth. Brooklyn. 36 Merriman A. R. 88 Werlder. Com. 37 Merriman A. R. 38 Werlder. Com. 37 The Stilles & Farker Press Co., Middletown, Ct. 38 The Stilles & Farker Press Co., Middletown, Ct. 38	Gautier Steel Co., Ld., Johnstown, Pa 1810
5	Presses, Fruit and Vegetable.	Miller, Metcalf & Parkin, Pittsburgh
5	Mohawk & Hudson Mfg. Co., Waterford, N. Y 25	Pennsy vania Steel Co., 208 S. 4th Phila
4	Bliss & Williams, 167 Plymouth. Brooklyn 36	Philadelphia Steel Forge, Philadelphia, Pa 6
6	Peerless Punch & Shear Co., 52 Dey. N. Y 37	Sanderson Geo. & Co., to Gold. N. Y.
Y 4	The Stiles & Parker Press Co., Middletown, Ct38	Smith, Sutton & Co., Pittsburgh, Pa
4	Penfield Block Works, Lockport, N. Y	Spencer J. R. & Son, Sheffield, England
4	Pulley Cover.	The Edgar Thomson Steel Co., 57 Broadway, N. Y
ohia 5	Providence 100 Co., Providence, R. 1. 24 Pullev Cover, Wright C. L & Co., 14 South William, N. Y	Wardlow S. & C., Sheffield, England
4	Douglas W. & B., Middletown, Conn	Steel Spiral Springs, Manufacturers of, Cary & Moen, 23 W. 29th, N. Y
4	Hartford Compressed Air Pump Co., Hartford	Chatillon John & Sons, qi and q3 Cliff, N. Y 9
F16	Conn. 34 Pulsometer Steam Pump Co. 83 John, N. Y. 37 Rumsey & Co., Senseer Falls N. V. 7 Rumsey L. M. & Co., St. Louis, Mo. 34 Union Mg. Co., 66 Chambers, N. Y. 7	The Chalmer - Spence Co., foot oth St., E. R., N. Y. 14
4	Rumsey L. M. & Co., St. Louis, Mo.	Stocks and Dies.
4	Union Mfg. Co., 96 Chambers, N. Y	Holroyd & Co., Waterford, N. Y
5	Rails. Fron and Steel. Makers of. Allentown Rolling Mill Co., Allentown, Pa. State & Despard, 117, Pearl, N. Y. Cambria Iron Co., Johnstown, Pa. Cleveland Roll ne Mill Co. (Leveland, Ohio	Witey & Russell Mfg. Co. Greenfield. Mass
1	Bates & Despard, 117 Pearl, N. Y	Taunton Crucible Co., Taunton, Mass 30
ough. 6	Cleveland Rolling Mill Co. Cleveland, Ohio	Ansonia Brass and Copper Co., to and 21 Cliff, N. V. a
igton 4	Montour Iron & Steel Co., Danville, Pa	Stove Repairs. Metzner W. C., Chicago, III
4		Stove Trucks. Tucker Alarm Till Mfg. Co., Indianapolis, Ind. 10 Strops, Razor. Copeland, Hall & Co., Rochester, N. Y. 10 Torrey J. E. Worcester, Mass. 10
4	Tower L. C., Rochester, N. Y	Copeland Hall & Co. Boehester N. V.
4	Rivers.	Torrey J. R. Worcester, Mass
5	Falis Rivet Co., Cuyahoga Falis, Ohio	Stump Puller. Dorsey R. S., Indianapolis, Ind
4	Hoopes & Townsend, Philadelphia, Pa.	Dorsey R. S., Indianapolis, Ind. Sugar Spont and Bucket Hanger. Post C. C., Burlington, Vt
4	Old Colony Rivet Co., Kingston, Mass	American Tack Co. Fairbayon Mass.
		Field A. & Sons, Taunton, Mass
4	Farrel Foundry and Machine Co., Ansonia, Conn. 24 Gates & Scoville Iron Works, Chicago, Iil38	Field A. & Sons, Taunton, Mars. 13 Grundy Geo. C. 16: Greenwich N. Y. 24 Philips E. & Sons, South Hanover, Mass. 13 Shelton & Co., Birmingham, Ct.
2	Rolls (Chilled).	Shelton & Co., Birmingham, Ct
38	Garrison A. & Co., Pittsburgh, Pa	Sherion & Co., Brimingham, C. Taps nail Dies. Carpenter J. M., Pawtuckel, R.
2	New T., 30 John, N. Y	Wells Bros. Greenfield, Mass.
	Stanley Rule and Level Co., 29 Chambers, N. Y 3	Wiley & Russell Mfg, Co., Greet field, Mass 33
37	Chalfant Mfg. Co., 438 Arch, Philadelphia	Testing Machines. Olsen Tinius & Co., Philadelphia, Pa
22	Enterprise Mfg. Co., Philadelphia	Oswego Thermometer Works, Oswego, N. Y25
27	Sand and Emery Paper, Makers of. Raeder, Adamson & Co., 730 Market, Philadelphia	Oswego Thermometer Works, Cswego, N. Y. 25 Tower L. C., Rochester, N. Y. 12 Fin Ware, Stammed and Japannes Block David, O Bayard, N. Y. 27 Shepard Sidney & Co., Buffalo, N. Y. 27 Shepard Sidney & Co., Buffalo, N. Y. 3
rook-	Sand Sifter. Richlé Bros., Philadelphia, Pa	Block David, 69 Bayard, N. Y 27
29	Contained a total con-	Vogel William, Brooklyn, E. D., N. Y 3
	Universal Sash Lock Co., Albany, N. Y	American Tool Co., 116 Chambers, New York
25	Saw Sets. Farr Asa, 64 College Place, N. Y	Armstrong F., Bridgeport, Ct., 24
35	Boynton E. M., so Beekman, N. Y	Saunders' Sons, Yonkers, N. Y
22	Farmers' Mfg. Co., Cincinnati, O29	Tran-portation Lines. The Iron Line, 31 Coenties Slip, N. Y
3	Wheeler, Madden & Clemsen Mfg. Co., Middle	Tree Pruners. Lee E. S. & Co., Rochester, N. Y
35	Fair Asa, & College Place, N. Y. Saws, Makers of. Boynton E. M., & Deekman, N. Y. Boynton E. M., & Deekman, N. Y. Boynton Henry & Sons, Phila. Farners' Mg. Co., Cincinnati, O. Gerlach Peter & Co., Cleveland, Ohio. Wheeter, Madden & Clemsen Mg., Co., Middletown, N. Y. Scales. Manufacturers or.	Brucy Geo. W., a Platt. New York
30	Scales. Manufacturers or. Arnold & Rowe, Troy, N. Y. 22 Buffalo Scale Co., suffalo, N. Y. 24 Charillon John & Sons, or Cliff. N. Y. 0 Olsen Tinius & Co., Philadelphia 22 Ricale iros., oth above Master, Phila. 24&2 Weeks & Pay, Ruffalo, N. Y. 24	Brucu Geo. W., 1 Platt, New York. 1. Try Squares, Bevels, &c., Makers of, Disston Henry & Sons, Phila. 22
37	Charillon John & Sons, or Cliff, N. Y.	Tube Expanders. Dudgeon Richard. 24 Columbia, N. Y
36	Olsen Tinius & Co., Philadelphia	
34		R. J. Deakin, Philadelphia, Pa24
Pa. 34	Screws, Makers of. Billerbeck J., 17th and Venango Sts., Philadelphia.23	Merchant & Co. for Market Phila
36	Bilterbeck J., 17th and Venango Sts., Philadelphia 23 Miles F. S., 205 Quarry, Phila 14 Philadelphia Screw Co., Philadelphia, Pa	Twist Drills, Makers of. Morse Twist Drill & Mach. Co., N. Bedford, Mass4
16	Screw Cutting Machinery. Wiley & Russell Mrg. Co., Greenfield, Mass	Turner & Courney West Co. & Prode N. P.
N. Y.37	Wiley & Russell Mrg. Co., Greenfield, Mass	Valves, tins, Water and Steam.
N. Y.37	Market Britishen (Intercepted) Makeye of	Valves, Gas, Water and Steam. Ludiow valve Mr. Co., Troy, N. Y
37	Disaton deury & Sons Phila	Berry Brothers, Detroit, Mich
10	Beardslev Scythe Co., West Winsted, Conn	Poker Hermann & Co. 101 Duane N. V
36	rike A. F., Pike Station, N. II	Hall Mrg. Co. 23 Dey, N. Y.
2	Seliers Wm. & Co., Phila. and 7 Liberty st., N. Y 37	Millers Falls Co., 74 Chan bers, N. Y
****** 35	Gifford Mtg. Co., Union City, Conn.	Vises. Floker Hermann & Co., 161 Duane, N. Y., 28 22 Hall Mfg. Co., 22 Dey, N. Y., 17 Howard Iron Works, Buffalo, N. Y., 36 Mitters Falts Co., 24 Chan bers, N. V., 37 Mitters Falts Co., 24 Chan bers, N. V., 15 Stophens Patent Vise Co., 41 Dey, N. Y., 44 Watchman's 'i ime Detecter, rhanaser, E., 22 Broadway, N. Y., 22 Weather Stilps. Valen ine W. T., Albany, N. Y., 32 Wheels. Huilteand. Bowler & Co., Cleveland, C., 24 Whitney A. & Sons, Fhiladelphia. 6
16		Fmhauser, E., 212 Broadway, N. Y 22
N.Y.16 vania	Hull J. E., Cincinnati, O	Valentine W. T., Albany, N. Y
vania	Shears (Sheen). Field Alfred & Co., 52 Chambers, N. Y	Bowler & Co , Cleveland, C.
16	REMINER AS FEE, 12 W MITCH, AS I	Whitney A. & Sons, Philadelphia
6	Ship Chandley. Creed Geo. H., 103 Reade, N. Y.	Pike A. F., Pike Stat'en, N. H II
N. Y. 37	Sparks Thos. W., 121 Walnut, Philadelphia.	Bruoklyn White Lead Co., 182 Front, N. Y 22
Ohio36	Shovets, Spades and Scoops,	Jewett John & Sons, 182 Front, N. Y
on13	Shovels, Spades and Scoops. Griffiths Geo., Philada. Pa	Window Balances. 231 S. Front, P.ila., Pa 32
	Shutters, Steel and Wood, Clark & Co., 162 W. 27th, N. Y	Window Balances, Hugania B. Hattford Ct. 24 Window Surlings, Makers of, Hammond W. S., Lewisberry, Pa. 30 Wire, Manufacturers of,
N.Y.10	Billers.	Hammond W. S., Lewisberry, Pa
29	Hunter J. M. & Co., Cincinnati, O	Cary & Moen, 24 W. 26th, N. Y.
10	Crosby, Sahler & Co., Rondout, N. Y.	Hammond W. S., Lewisberry, Pa. 20 Wire, Janufacturers at. Cary & Moen, 24 W. 26th, N. Y. Cleveland Roiling Mill Co., Cleveland, Ohio. 3 Cleveland Roiling Mill Co., Cleveland, Ohio. 5 Gautier Steel Co., Ld., Johnstown, Pa. 22 G Gilbert & Bennett Mg. Ce., 273 Pearl, N. 7 Griswold J. Wool, Troy, N. Y. Harrison Wire Co., 81, Louis, Mo. 4 Howard & Morse, 15 Fulton, N. Y. Prentiss Geo, W. & Co., Holyoke, Mass 2 Percins & Choale, 23 Nassau, N. Y. Trenton Iron to., Trenton, N. 4 Washburn & Moen Mg. Co., Worcester, Mass 2 Wire Goods, Manufacturers at.
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N. Y. 2 2038	Vermont Snath Co., Springfield, Vt	Trenton Iron Co., Trenton, N. J.
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door. There is no good reason for hiding the look in a mortise unless it is to make it inaccessible and to get its uncouth and unfinished shape out of sight. The French and most European architects use rim locks and finish them in sumptuous styles, adorning them with carvings and gilded moldings. They are effective objects in the decoration of the interior. So also the window bolts are in full sight upon the sashes and are elaborately finished. The contrast between the cases of locks in the French section and those in the United States section was strongly marked, the French being decidedly the most brilliant and ornamental. The effort to decorate our American rim locks is

to be hailed with pleasure, and should be encouraged by consumers.

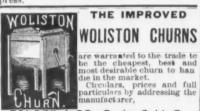
There was some discussion among the members of the jury familiar with the hardware trade of France and Belgium, upon ware trade of France and Beightin, upon the relative cost and prices of European and American hardware. It thus became in-teresting to learn something of the ability of such an establishment as this, devoted exclusively to locks, to compete with the French in the same line of industry. It was shown that the prices at the place of manushown that the prices at the place of manufacture were much lower than the French. Messrs. Mallory, Wheeler & Co. were ready to furnish a good reversible knob lock, complete with knobs, escutcheons, screws, &c., ready for the door at 12 cents per door, and a padlock with a spring shackle and key as low as 4½ cents each. This was a surprise to many of the foreign manufacturers, who made goods at extremely low prices and made goods at extremely low prices and fancied that they could not have hurtful

competition.

The firm has received awards at several exhibitions. At the Centennial, 1876, Philadelphia, their award was given for the following reasons: "Commended as very following reasons: "Commended as very superior goods, fine in finish, and tasteful in design." After a careful examination by the jury at Paris a gold medal was awarded.

The Newcastle Coal Trade in 1649 .-The following references in "Grey's Chorographia" to the coal trade of Newcastle, about A. D. 1649, are well worth transcribing: "There come sometimes into this river for coales, three hundred sayles of ships. for coales, three hundred sayles of ships. Many thousand people are imployed in this trade of coales: many live by working of them in the pits: many live by conveying them in waggons and waines to the river Tine: many men are employed in conveying the coales in keeles from the stathes aboard the ships: one coal merchant imployeth five hundred or a thousand in his works of coals: yet, for all of his labour, care, and cost, can yet, for all of his labour, care, and cost, can scarce live of his trade: nay, many of them hath consumed and spent great estates, and dyed beggars. I can remember one of many that raysed his estate by coale trade: many I remember that hath wasted great estates. Some South gentlemen have upon great hope of benefit come into this country to hazard their monies in coale-pits—Master Beaumont, a gentleman of great ingenuity and rare parts, adventured into our mines with his thirty thousand pounds: who brought with him many rare engines not known then in these parts; as the art to boore with iron rodds, to try the deepnesse and thicknesse of the coale: rare engines to draw water out of the pits; waggons with one horse to carry down coales from the pits to the stathes to the river, &c. Within few years he consumed all his money, and rode home upon his light horse. The coale trade began not past four-score years since: coales in former times was only used by smiths, and for burning of lime: woods in the south parts of England decaying, and the city of London, and other cities and townes growing populous, made the trade for coale increase yearely, and many great ships of burthen built, so that there was more coales vented in one yeare, than was in seven yeares, forty yeares by past: This great trade hath made this towne to flourish in all trades." hath consumed and spent great estates, and dyed beggars. I can remember one of many in all trades."

A new apparatus for hand printing has met with considerable patronage in Russia, the native land of the inventor, Alissoff. It is a larger apparatus than Remington's is a larger apparatus than Remington's American type-writer, and both hands and feet are employed in working it—the hands in turning a handle round a dial on which the letters are spaced, and the feet in working a treadle. When the handle is stopped opposite a letter of the dial, that letter is ready to make its impression on the paper, which is pressed upon the type by the action of the treadle. Alissoff's printer, says Engineering, is not quite so fast as Remington's, but, on the other hand, it can be made to but, on the other hand, it can be made to print in six complete alphabets, or in four alphabets and the necessary figures and appadets and the necessary neuros and signs. Moreover, the impression is made in printer's ink, and if it be dusted with bronze powder, from 20 to 25 proofs can be obtained from it in an ordinary copying



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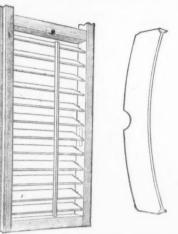
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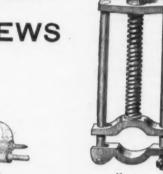


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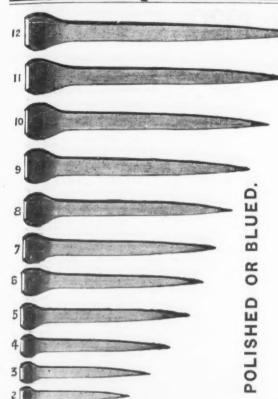
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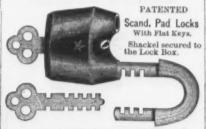
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Sawing Brass Ferrule \$3.50 W gross—dis 40&1	0%	Can Ope	ener	Cor
Patent Sewing, Short	0% [merican. ouplex		
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6 H. Hammonds (new list July 20, '80)di net Humason & Beckleydi	8 25 % 8 20 % 8 50 %
5 % Magnetic Tack, Nos. 1, 2, 3, \$1.25, 1.50 and 1.75.dis 2: Warner & Noble's	8 20 %
Frovidence Tool Co.'s Hand Cuffs, \$15.00 \(\pi \) doz \(\text{doz} \) Leg Irons, \$25 \(\pi \) doz \(\text{doz} \) \(\text{doz} \)	8 10 %
et Handles.—Door or Thumb Latches—	3 25 %
Per doz\$2.50 f.oo f.18 f.3s f.sc dis s_c Roggin's Latches	e net
be Plate, \$1.08 p	10%
Saw and Plane dis 201 Boynton's Pat. Loop Saw Handles dis 201	25 %
Hammer and Hatchet	20 %
Socket " " assorted, " 3.00)	iis tro %
File, assorted, \$\psi\$ gross. 2.75 Auger, assorted, \$\psi\$ gross. 0.00	25
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Judd's " " 14.00, dis 50&: Fitzh's (Bristol) " 14.00, dis 50&:	10 %
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Gate, Western \$\psi \dor \xi \dor	g Li
* N. E. Reversible b doz 86.50. dis 65 Gate, Clark's No. 1 # aoz 80.50. dis 55 " N. Y. Slaie \$ doz 80.50. dis 65	5 5
** N. E. Reversible . ** dor \$6.50. dis 6.50.	N SO HO
Rolled Plate	Ta Ru
"Providence" (over 12 in. \$5,20 @ 100 D (dis 10 Serew Hook and (5, 10,12 in., 26,75 % 100 D dis 10 Strap	S U.
Screw Hook and Eye 90 din. 100 20	Bri Ma Pri
	6 '
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Bird Cage, Sargent's list	P
Cotton (Humason & Beckley Mfz. Co.). dls 40 ; Belt. (new list Dec. 24, 1870.). dls 60&10 ; Bench—Hotchkiss', 85 00 % doz. dls 10 ; " Weston's No. 1, 81000. No. 2, 8000 % doz. dls 10 ;	Por
" McGill's, \$3.00 % doz	Nile
Ceiling) Sargent's list	Mag Aste Cro
Picture Hooks, Brown's Pat. Solid Brass, & per gross. dis 25 % [assci (T. & S. Mfg. Co.). dis 40 % Wrought Stables and Hooks and Staples, dis 65 % 10 % 10 %	Ben Mou Bail
Cotton (Humason & Beckley Mfs. Co.). dis 497 Belt. (new list Dec. 24, 1870.). dis 608 ro.) Belt. (new list Dec. 24, 1870.). dis 608 ro.) Belt. (new list Dec. 24, 1870.). dis 608 ro.) "Weston's No. 1, \$10.00; No. 2, \$5.00 dis 10.3 "Weston's No. 1, \$10.00; No. 2, \$5.00 dis 2.3 "McGill's, \$2.00 dis 2.3 "Skinner's, \$6.32 per dos. dis 2.3 Clothes Line Sargent's list. dis 602 ro. Celling. Sargent's list. dis 908 ro. Celling. Sargent's list. dis 208 ro. Coat and Hat, Sargent's list. dis 208 ro. "Reading: 1815. dis 208 ro. "Staples, \$100 dis 2.3 "Staple	The Bail Defi Plan
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National Pointed 25 23 21 20 19 18. dist. Harse Shoes Burden \$\psi\$ keg \$4.37\% 1. I Horse Shoe Co. Perkins' Improved Light, Medium and Heavy \$\psi\$ keg 4.37\% Luie Shoes \$\psi\$ keg 5.37\%	Russ P.S.
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collect Pick in Head. ** 100, 30 and 1.75 by Pick in Handle ** 40 and 1.75 between Axes Small, Cast or Malicable ** 40 s 1.20 between 1	Fletc Vaug 6 in Eure
Cettles. Brass, 7 to 13 inches inclusive	Diast
	E. S Frun Pu Hot I
Knobs.	Jap'd Brass Jap'd
arriage (Jap'd soc. w gross) dis (5 & 105) see-Common. dis 30&108 emacite boor Knobs. New list, dis 30&108 or, Mineral. New list, dis 30&108 or, Mineral. Same discounts as Door Locks. "Por. Por. 18140. 750 gross inch. dis 10 \$	Hay !
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11	8 14 % 8 24 % 8 20 %	
d	8 50 % 18 5 % & 10 %	Lanterns. Tubular
1	8 20 %	Lanterns
	10 % 3 25 %	Folice. Small, \$7.00; Med. 88 20; Large Cta. a dia
00	tro «	Porcelain Lined
18	10%	Convex Reflector
18	2 013 2 013 2 013 2 013	### Clothes. Galvanized
8 8	25 % 25 % 20 % 20 %	Lacks and Latches. Jabinet—Eagle Changes made in list price Gaylord some numbers July 1, 138 Bridgeport and also July 15, dis
		Wire Clothes, Galvanized. each 25 @ 500 in Lacks and Latches. Changes made in list price of Gaylord. Some numbers July 1, 180 in Lacks and Latches. Changes made in list price of Gaylord. Some numbers July 1, 180 in Langstroth & Detts. dis & Girls. A. E. Detts. dis 40% in Langstroth & Crane's List Jan. 1 '77, dound Key, No. '10 is dis 10% in dis 40% in State of Crane's List Jan. 1 '77, dound Key, No. '10 is dis 40% in State of Crane's List Jan. 1 '77, dound Key, No. '10 is dis 40% in State of Crane's List Jan. 1 '77, dound Key, No. '10 is dis 40% in State of Crane's List Key. dis 40% in Subgardson' or 'U. S. dis 40%
8	iis iio %	Flat Key. dls 20% 10 A. E. Deltz, Flat Key. dls 20% 10 Yale Lock Co., Flat key. dls 20 Shepardson" or "U. S."
ί.	net net	"Feiter" or "American"
8	10 %	P. & F. Corbin List of June to, with change
1 20 1	50 % 50 % 10 % 50 %	Russell & Erwin of Dec. 1, 1682. Reading Hardware Co Reading Hardware Co Padiocks—Russell & Erwin
t	10 4	Mailory, Wneeler & Co and 2 % for case Wm. Wicox & Co and 2 % for case Yale Lock Mfg. Co.'s "Standard"dis 40
1	10 % 10 % 10 %	"Yale Lock Mfg. Co.'s "Standard"dis 40 Romer's
8	10 % 10 %	Penfield Block Works, Lig., Apple & Hickorydis 30 Ment Cutters.
	5	Penfield Block Works, Lig., Apple & Hickory. dis 50 % Ment Outters. Dixon's (P. S. & W.) Nos. 1
2 4 11 7	15	Each\$1.00 4.00 0.00 11.00 13.00 36.00 -dis 30 3 Woodruff's (P. S. & W.)NC3. 100 15.00 18.00 dis 35 3
0 3	50450	Draw Cut Nos 5 2 6 10 Each \$40.00 75.00 80.00 225.00 480.00—dls 20 6
31	0 %	Each \$60.00 75.00 80.00 275.00 460.00-dis so to represent the second sec
Q	5 5	
OI	o I	Beef Shavers (Enterprise Afg. Co)
	% I	Seef Shavers (Enterprise Rifg. Co)
n	et S	Owles Edw. Co
	E CBL	Chase's Hard Metal. Gls 406 to 5 Ush's Gls 20 ft Gls 20
0	% B	0°s, No. 1 2 3 4 dis 10 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
2000	AMM N	Nats and Washers. See Trade Report quare Nuts.
000	E T	exagon Nuts
2	S RI	ake's Pattern da daz 83.00, die 10 % irner & Seymour Mfg. Codis 40 % daz 83.00, die 40 %
0	" U.	S. Navy 110
la h	M Pr	alleable (Haumer's) P doz \$4.00, dis 10 \$ lior's Patent or "Paragon Zinc. dis 60 \$ Brass. dis 60 \$
	Br	Differs.—Zinc and Tin
1	F	Dencils, Faber's Carpenters'. High list, dist_eff.ro Round Gilt. # gross \$4.50 net "Lumber. # gross 4.50 net con's Carpenters'. dis 40 & 10 % Packing, Steam.
5 50	Di	xon's Lead. Fgross 4.50 not Lumber Fgross con's Carpenters dis 40 & 10 %
30 9	N. Br	Packing, Steam. Y. Beiting and Packing Co
TAN ME NO.	Po	Y. Beiting and Packing Co
MAKIMAK.	Ma Ma	Pinking Irons
2888	Cro	dia 2: 8 'inkins Irons 'inkins And Pinne 'inkins And Pinne Irons 'inkins And Pinne Irons 'inkins And
MEN M	Mo	Con. First Quality
2000	The Bai Def	Stanley (S. R. & L. Co.) Stanley (S. R. & L. Co.) ley's "Victor" dis 20&10 \$ dis 20&10 \$ dis 20&10 \$ dis 20 \$
36	1	" Buck Bros
8 56	P	"Ohio Tool Co
	Hal Si Hui	ton's Patent. dis 3314 t Pis Pat. Compound Lever Cutting Nippers No. 2; n. \$20; No. 4, 7 in. \$30 v doz. dis 15 % nason & Beckley Mig. Co. dis 330 s
-	Eur Rus P.S	Here and Nippers. 10's Patent. 10's Patent. 12' Pat. Compound Lever Cutting Nippers No. 2; 13' Pat. Compound Lever Cutting Nippers No. 2; 14' Pat. Compound Lever Cutting Nippers No. 2; 15' Piters. 16' Piters. 16' Piters. 16' Patent Nippers. 16' Parullel. 16' Parullel. 16' Parullel. 16' Patent Nippers. 16' Pat
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n list price of July 1, 1885, 15, dis	## 36 inch # n 1856 - M and c-16 inch # n 1856 Tar'd Nope # n 1856
dis & @ 10 C	** American Patent. dbs ac **Rollers.** Earn Door, Sargent's list. dls cc&to. Novelty. dis no. **Rope.** **Bannia 'spinca and larger ** B 13. **Sinch **
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acco—dis 35 1 g'rd loo—dis 30 %	Steel Ribbon. Sinch J. Jocks. Clark's, No. 1, \$10.80; No. 2, \$5.00 per gross dis 33/2 Fercuson's dis 33/2 Walker's on Hammond's Window Springs on Hammond's Window Springs dis 23 Northun Window Springs \$5.00 per gross, dis 10 The Perfect, Clark & Smith, Plain Jap d. & gro \$10.00 per Por, Knob Jap d. & gro 1,00 per Nickel-Plated. & gro 27.00 per Nickel-Plated. & gro 27.00 per Single WeightsSolid Ever, in 300 b 1018
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S.H. & E. Y. MUUKE.

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AGENTS FOR

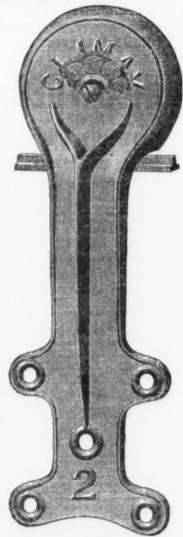
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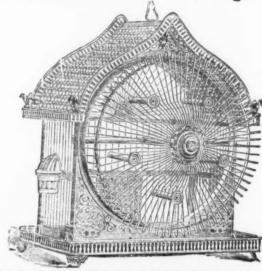
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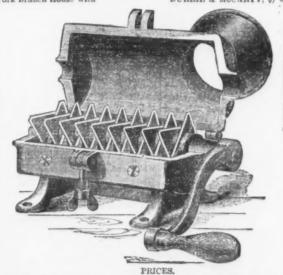


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A	
METALS.	4 Per cent
	6 4 90 90 1.00
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From American P ton \$25.00	STEELDUTT: Bars, Ingots, Bheets and Coiss valued at yount & B., or under, 244 cents; over, 7 cents, and not above 11, somets, 244 cents; over, 7 cents, and not above 11, somets & B. over 11, 34 cents & B. and 10 for an analysis of the second of the sec
Eglinton	that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as
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Balvanized, to to 20.	TIN.—DUTY: Plates, Sheets, Tagger and Terne, I.i.C F 5: Elecro-galvanised Plates, 2C S 5: Manufactures
Patent Planished W b 12c: B. 10%c Russia 11%G121%c	**Parameter ** Plates, accords, ragger and terns, 1.10 ** **D ; Electro-galvanised Plates, or \$\psi\$; Manufacciares of, sot enumerated, 35 per cent. ad. val. Bars, Block and Plas free. Banca, subject to duty of 10 per cent Ranca
UPPER.—DUTY Pig, Bar and Ingo 1, 10; OldCopper 4c B; Manufactured (including all article of which Copper is a component of chief value), 45 % ad	English # 5212220
American Ingot B B See Trade Report.	1 C 10X14 Prime Charcoal
BHEATHING, BRAZIERS' COPPER, BOLTS, &C. Braziers' Copper, ordinary sizes, tox. per sq. ft., and over per lb. Braziers' Copper, ordinary sizes, under 16 oz. Braziers' Copper, ordinary sizes, under 16 oz. Braziers' Copper ordinary sizes, under 16 oz. Braziers Copper 12 oz. Braziers Copper 12 oz. Lighter than 10 oz. B sq. Circles less than 8; is. n diameter B 5 sq. Circles less than 8; is. n diameter B 5 sq. Circles less than 8; is. n diameter B 6 sq. Circles less than 8; is. n diameter B 7 b 340 Esgment and Pattern Sheets B 10 sq. Ocomotive Fire Box Sheets B 10 sq. Sheathing Copper, over 12 oz. B 5q. ft. B 36 B 36 B 50 topper B 50 toms No Copper is Sheathing except 147,8 inches and ner D 6 xceed 34 oz. to the 34, ft.	IX 10X14 Charceal
Braziera' Copper. ordinary sizes, under 16 oz. and over 12 oz. \$ sq. ft \$ 5 soc Braziera Copper 10 oz and 12 oz., \$ sq. ft \$ 5 3ac	D C 12\6\x17 DX 12\6\x17 To X 12\6\x17 For each additional X add 2.00
Circles less than 84 is. n diameter \$ 10 340 fireles 84 in. diameter and over \$ 11 340	COKE TIN PLATE. Best. I C 10X14 \
Segment and Pattern Sheets. # B 310 1.000motive Fire Box Sheets. # B 380 Sheathing Copper, over 12 os. # sq. ft. # B 260	1 C 12X12 5.50 @ 5.75
Eopper Bottoms	TERME FLATE Prime Char. 2d quai. Coke. I C 11X20. \$4.50 \$5.75 \$.25 \$.00 \$.525 \$1X 14X40. \$7.50 \$1.50 \$11.50 \$10.50 \$11.00 \$1X 200.25 \$11.50 \$10.50 \$11.00 \$10.50 \$11.00 \$10.50 \$11.00 \$10.50 \$10.50 \$11.00 \$10.50
O. THE WITH CO.	IX 14x20
For tinning both sides, double the above amount	I C 14720 M. F. Brand
4 and it os. and heavier. 3 3 360 By the case. \$ 3 360	SPELTER-DUTY: In Pigs, Pars and Plates, \$1.50 \$
12 02. and lighter	American, cash
and to or, and heavier # B 400	ZINCDUTT: Pig or Block, L50 # 200 %s. Sheet sk6 # %. Sheet, Cask
2 0E ₩ 1043C	" Open7½ ∉8€
Brown & Sharp's Gauge the Standard for Metal; Old English Gauge the Standard for Wire. BRASS MANUFACTURERS' PRIOR LIST.—dis 20%. June 10, 1880.	Paper Stock, &c.
Cash prices for Roll and Sheet Brass. For less quantity than 100 ms. add 30 \(\phi \) b.	
All Nos. not thinner than to No. 28, wider than 2 in not wider than 1, in 300 All Nos. to No. 28, inclusive, and widths over 14 to	(Dealers' Selling Price.) White Shirt Cuttings, No. 1
All Nos. not tinner than 1; iii	Mill Assorted Whites 54 54 54 54 54 54 54 54 54 54 54 54 54
360 # h advance on each No. above Nos. 38 to 3s, inclusive. All Brass thinner than No. 38 is Platers' Brass, at 430 Bhoets 24x18, and all sheets out to particular sizes and lengths under 30 in., in width witer than 1 in. 370 Printers' Kulles	Mill Assorted Whites 50, 2 5 6 5 5 6 5 5 6 5 5
Sheets 24x48, and all sheets cut to particular sizes	374 I
Printers' Bules450	No. 2, Whites. 334 G 334 Cotton Canvas 44 G 45
Printers' Hules	No. 2, Whites 34 6 34 Cotton Canwas 44 6 44 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
4c in. and over	No. 2, Whites
40 in. and over	Cotton Canvas Linen Canvas Linen Canvas Social Linen Canvas Linen Canvas Social Linen
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10	Cotton Canvas 44
o in. and over to Circular Sheets, in diam. from 4 in. to 14, incinsiveoc voer 14 20, 45, 45, 20, 45, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	Cotton Canvas 44
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Circular Sheets, in diam. from 4 in. to 14, inclusive., soc. " 20, " 45, " 20, " 45, " 20, " 46, " 20, " 46, " 30, " 46, " 30, " 46, " 30, " 46, " 40,	Cotton Canvas
Circular Sheets, in diam, from 4 in, to 14, inclusive, acc work 14 in, to 14, inclusive, acc with a solid state of the sta	Cotton Canvas
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Asphaltum				(
Chair.	*******	******	···· #	
" Block. Dryer, Patent, Am'n	6881	cans,	1016C;	keg,
Glue, White				
Gum, Copal				3
" Shellac, English dark		******		4
Mineral Wool	*******		n 134	@ 13
Putty, in bladders		******	*** ****	3
" in bulk			******	47
Glas				
FRENCH WIND	OW OL	ARE.		
Prices current pe	r box o	f 50 fee	t.	
Single ThickDi	scount	45 to 5	0 %	
SIZES.	ıst.	ad.	3d.	4th.
6 x 8 to 10 x 15 11 x 14 to 16 x 24 18 x 22 to 20 x 30	\$ 6,50	\$ 5-75	\$ 5.50	\$ 5.5
11 x 14 to 10 x 24. 15 x 26 to 20 x 30. 15 x 36 to 24 x 30. 26 x 38 to 24 x 36. 26 x 46 to 30 x 56. 30 x 5 to 30 x 54. 30 x 5 to 30 x 54.	9.35	8.40	7.78	7.8
15 X 36 to 24 X 30	10.25	9.25	8.25	
26 x 28 to 24 x 35	11.00	10.00	9.00	
26 X 36 to 36 X 44	11.75	10.75	9,50	
20 X 40 to 30 X 50,	13.25	12.50	10.50	
30 X 52 to 30 X 54	14.00	13.00	11.25	
34 x 58 to 34 x 60	75.50	13.75		
36 x 60 to 40 x 60	15.50	15.00	15.00	
Double ThickDisco	unt 50	to so at	ad 5%.	
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SIZES.				\$ 7.00 8.20
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6 X 8 to 10 X 15	\$ 8.25 10.00 12.75 14.25 15.25 16.35 17.50 18.50	8 7.75 9.25 11.75 13.00 13.75 14.75 16.75	\$ 7.40 8.75 10.75 11.75 12.60 13.00 14.25 14.75	₿ 7.0x 8.20
6 X 8 to 10 X 15	\$ 8.25 10.00 12.75 14.25 15.25 10.25 17.50 18.50 19.50	\$ 7.75 9.25 11.75 13.00 13.75 14.75 16.75 17.25 18.25	\$ 7.40 8.75 10.75 11.75 12.60 13.00 14.25 14.75 16.25	\$ 7.0x 8.20
SIZES.	\$ 8.25 10.00 12.75 14.25 15.25 16.35 17.50 18.50	8 7.75 9.25 11.75 13.00 13.75 14.75 16.75	\$ 7.40 8.75 10.75 11.75 12.60 13.00 14.25 14.75	\$ 7.00 8.2
81ZES. 6 X 8 to 10 X 15	\$ 8.25 10.00 12.75 14.25 15.25 16.25 17.40 18.50 19.50 20.40 23.00	\$ 7.75 9.25 11.75 13.00 13.75 14.75 16.75 17.25 18.25 19.50 21.00	\$ 7.40 8.75 10.75 11.75 12.60 13.00 14.25 14.75 16.25 18.00 20.00	or.
81ZES. 6 x 8 to 10 x 15. 11 x 14 to 16 x 24. 11 x 14 to 16 x 24. 15 x 36 to 20 x 30. 15 x 36 to 24 x 30. 26 x 38 to 24 x 30. 26 x 38 to 34 x 36. 20 x 34 to 30 x 50. 20 x 5 x 5 to 30 x 50. 20 x 5 x 5 to 30 x 50. 30 x 5 x 5 to 30 x 50. 30 x 5 x 5 to 30 x 50. An additional 10 per cent. An additional 10 per cent. Class more than a 6 inches	\$ 8.25 10.00 12.75 14.25 15.25 16.25 17.40 18.50 19.50 20.40 23.00	\$ 7.75 9.25 11.75 13.00 13.75 14.75 16.75 17.24 18.25 19.50 21.00	\$ 7.40 8.75 10.75 11.75 12.60 13.00 14.25 14.75 16.25 18.00 20.00	or or
81ZES. 6 X 8 to 10 X 15	\$ 8.25 10.00 12.75 14.25 15.25 16.26 17.60 19.50 23.00 will be wide.	\$ 7.75 9.25 11.75 13.00 13.75 14.75 16.75 17.24 18.25 19.50 21.00 e char	\$ 7.40 8.75 10.75 11.75 12.40 13.00 14.25 14.75 16.25 18.00 20.00	or er nite

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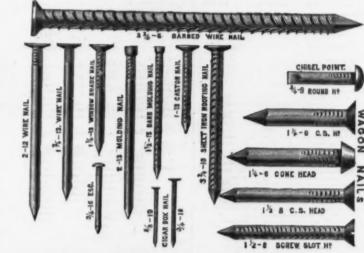
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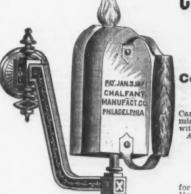


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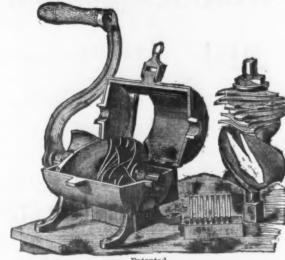
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Ringers, 750. Rings, 50c. 100. Holders, c. Huskers, 150 CHAMBERS, BERING & QUINLAN, Exclusive Manufacturers, Decatur, Ill.

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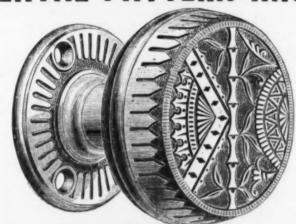


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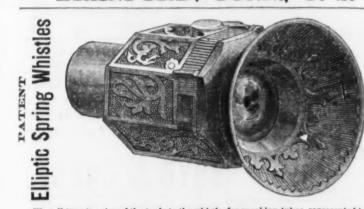
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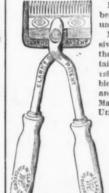
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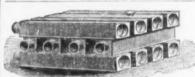
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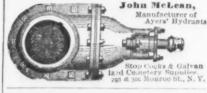


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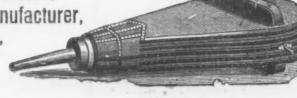
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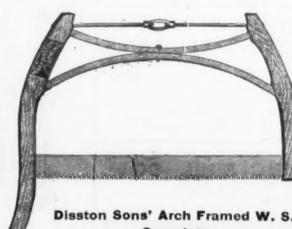
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65 Elizabeth Street, New York,
Manufacturer of Copper and Iron SASH CHAINS,

With Patent Attachments.
Warranted for years. Chains of any size made to erjar, and trade, surplied with liberal discount.

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PHILADELPHIA.	Screws. Flat Head Iron Brass Round Head Brass
(Corrected Weekly by Lloyd, Supplee & Walton.)	Round Head Brass
Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.	Speens. Plated. German Silver. Britannia, Boardman's. Parker's.
Anvils. Peter Wrights, ₩ B. 10% Over 2so lbs. 11c Eagle (American). 10c ₩ B—dis 2o %	Tinned
	Philadelphia5 in., \$5.00 Chatfield No. 1, \$2.75; 2, \$3
Apple Farers	Springs.—Torrey. Philadelphia; in., \$5,00 Chatfield No. 1, \$2,75; 2, \$2 Gem Coil No. 1, Large Jap "No. 2, Medium Jap "No. 3, Small Jap
" No. 75	Stocks and Dies Stove Polish,—Gem
Lots of 10 to 17 descri special prices.	Onyx
Hunt's Kentucky and Yankeeper doz \$11.00 Mann's Red Warrior	Tacks, Brads, &c Shoe Nails—4-8, 90; 31/2-8, 10 Double Pointed Tacks
A Xees. Hunt's Kentucky and Yankeeper doz \$11.00 Mann's Red Warrior	Traps.
Augers and Auger Bits.—New List January 1. Bates' Nut Augers	Im. Oneida—Newhouse lis Vises.—Solid Box, Trenton
Watrous' Ship Augers	Wrenches Agricultural. Coes' Genuine
Griswold Auger hits	Philada. Tool Co., Duplex.
### Augers and Auger Bits. New List January 1. ### Bates' Nut Augers	Wire. Bright or Ann'd, No. o to No. 19 to No. 27 to Coppered, o to 18 Tinned Broom Wire Gaivanized No. 7 to 18
Light and Commondis 15&10 %	Coppered, o to 18
Bevin Bros. Mfg. Co. Light Hand Bellsdis 60&10 % Swiss Pattern Hand Bellslow list dis 10&10 % Connell's Door Bellsdis 35 %	Gaivanized No. 7 to 18
Swiss Pattern than Swiss Swiss Pattern Swiss	Wringers. Peerless No. 216 Universal, No. 256 Novelty, No. 10
No. 2, " 36 " " 9 00 dis 15 %	Novelty, No. 10
Upright, without AugersLast 5-50 dis 40 %	2.000
Boring Machines. Upright, without Augers. List 5.50 dis 40 \(\) Angular, without Augers. 6.77 dis 20 \(\) Boits.—Eastern Carriage Bolts. Diliadelphia Staniey, Wrought Shutter. dis 50&10 \(\) Staniey, Wrought Shutter.	PITTSB
Staniey, Wrought Shutterdix 50&10 % Braces.—Barber's	TERMS.—Note or acceptant rate of exchange on New Y cent. for cash, if remitted w
Braces. Blis of Sackus. dis of Sackus. Spofford 0.18 to 68 5 3 American Balt. dis 40 8 to 8 40 8 to	
Butts.—Cast Fast Joint, Narrow	### ### #### #########################
Broad dis sokto % Acorn. Loose Pin dis sokto %	134 and 136 by 36 t. 36 "
" Mayer's Loose Joint. dis 55&10 % Wrought Loose Pin. dis 5,5&10 %	
American Ball	2 to 2%
Blind Butts. dis 795	T to 174. 2.50 2 to 276. 2.70 274 to 314. 3.00 234 to 4 3.50 444 to 5 4.00 34 to 36 2.60
Parke*	Oval .
Chrise - German Haiter and Coll. new list Oct. 22, 1870	% to 114 inch
Chinela Socket Framing	Horse % to 11/4 by 5-16 to 3/4 ineh
Socket Firmer	Wagon B
Casters Bed (new list July 1, 1880.) dis 30x10 5 Plate dis 30x10 5 Plate dis 30x10 5 Coffee Mills Box and Side, new list Jan. 1, 1880. dis 30 5 Enterprise dis 20 5 dis 20 dis 20 5 dis 20 dis 20 dis 20 dis 20 dis 20 dis	37 " " 13 and 14
1880	56 " " 13 and 14
Landers, Frary & Clark, J. Russell & Co., Lamon & Goodnow Mfg. Co. and Meriden Cutlery Co., Manu-	Heavy 1
Enterprise dis 26 Cuttery.—Walden Pocket new his 26 Cuttery.—Walden Pocket new his 16 to 26 Cuttery.—Walden Pocket new his net Landers, Frary & Clark, J. Russell & Oo., Lamson & Goodnow Mfg. Co. and Meriden Cuttery Co., Manufacturery prices net. (Brawing Knives. Hart Mfg. Co. 8. dis 65&10 5 Adjustable Handle dis 15 5 (Bry Pans.	314 to 6 by 14 and 5-16 inch. 114 to 314 by 14 and 5-15 " 1 to 114 by 14 and 5-16 " 14 to 34 by 14 and 5-16 " 15 and 14 by 14 and 5-16 "
Adjustable Handle	156 to 6 by 16 to 3-16
Tinned	1 to 1% by Nos. 11 and 12
# dox.#3.00 3.75 4.25 4.75 5.25 6.00 7.00 8.00 9.00 Fo 9 1 2 3 4 5 6 7 8	76 and 13-16 by 16 to 3-16 74 and 13-16 by Nos. 11 and 1
	% and 11-16 by Nos. 11 and 1 % and 9-16 by % to 3 16
Nicholson	96 and 36 by 36 and 5-16 Light E 15 60 6 by 16 to 3-15 Light II 1 to 176 by 36 to 3-15 1 to 176 by 36 to 3-15 1 to 176 by 36 to 3-15 26 and 13-16 by 36 to 18 and 12 26 and 13-16 by 36 to 18 and 12 36 and 13-16 by 36 to 3-16 36 and 13-16 by 36 to 3-16 36 and 9-16 by 46 to 3-16 36 and 9-16 by 46 to 3-16 36 and 9-16 by 36 and 3-16 36 and 9-16 by 16 and 16 36 and 9-16
	114 to 4, Nos. 13, 14 and 15
Earle-3(in. roll. each, \$2.15 dis ro £	1 4 to 2, No. 19
Geneva Fluter	134 to 2, No. 22 134 to 2, No. 22 15-10, 1, and 136, Non. 13, 14 an
Yerkes & Plumb's, new list	15-10, 1, and 116, Nos. 16, 17 and 14-16, 1, and 116, Nos. 19 and 20 15-16, 1, and 116, No. 21
Finaldes	### ### ### ### ### ### ### ### ### ##
Hunt dis 1525 %	% No. 21
Herse Nails. Nos. 5 6 7 8 9 10 Ausable	13-16, Nos. 13, 14 and 15
Hinges	13-16, No. 21
Clinton 22 20 19 18 17 Potter, all sizes 21 20 19 18 17	%, Nos. 13, 14 and 15 %, Nos. 16, 17 and 18 %, Nos. 19 and 20
Discount on Ausabie and Clinton, 20 %; Globe, 10% Locks and Knobs.	%, No. 21. %, No. 22.
Gaviord Cabinet. dis 10%2 % Cash American Padiocks dis 40 &2 % Cash	11-16, Nos. 16, 17 and 18 11-16, Nos. 19 and 20
# doz \$5.00 5.50 6.50 7.50 8.50 10.00 12.50 dis 60 %	11-16, No. 22. 96, Nos. 13, 14 and 15
¥18.00 26.00 33.00 3 dis 60 €	%, Nos. 10, 17 and 18
Lanteras. Nali City	96, No. 23. 98 No. 23. 9-16, Nos. 13, 14 and 15.
Clobes, 35 cents extra per doz. net.	9-16, Nos. 16, 17 and 18 9-16, Nos. 19 and 20
Lawn Mowers.—Pennsylvania dis 30&10 % Philadelphia dis 30&10 % Evcelsior dis 30&10 %	9 16. No. 22
Holland Patent	Nos. 16, 17 and 18 Nos. 19 and 20
Mattocks. Long and Short Cutternew list Pennsylvania Pattersper dog Molasses Gates.	No. 22
Enterprise Mrg. Co.'s Measuring Faucetsdis 20 % Stebbins' Gates	The prices under Hoop Iro Ties. 1-10c per lb. extra will be
Pennsylvania Patteraper dos Molasses Gatesdis 20 5 Stabbins Gatesdis 50&10 2 5 Stabbins Gatesdis 50&10 2 Lincoln'sdis 50&10 2 Lincoln'sdis 50&10 2 Landers, Frary & Clark's Petroleumdis 20&10 2 Brass Liquor Cocks, new list Jan. 1 158adis 40 5 Cork Lineddis 70 5 dis 70 dis 70 5 dis 70 dis	iighter than the lightest indi 1-10c per lb. extra will be el to specified lengths.
## ## ## ## ## ## ## ## ## ## ## ## ##	Ties. 1-10c per lb. extra will be lighter than the lightest indi- 1-10c per lb. extra will be of to specified lengths. 1/4 to 2 ln., cut of 0 I lbs., per set of 0 ln., cut of 0 I lbs. and loss than 0 ln. Less than lbs. per sot of 6 lnc.
wpodrum dis 35 % Siawe dis 30 % Hale's new list, dis 10. 2&10 cash	8 lbs. and less than 9 lbs. per Less than lbs. per set of 6 hoo
American dis 25 % Stuffers dis 35 % Enterprise Stuffers dis 35 %	Extras for Cutting to Leng All Iron, including Tire
20 %	No. 9 and heavier
Sciotodis 25 % Sciotodis 30 % 716 % cash	
Planes	Wings Sheet I
	No. 15 to 17 2 86
	Wings Sheet II Common. No. to to 14 3.40 No. 18 to 17 3.80 No. 18 to 21 4.10 No. 22 to 24 4.30 No. 28 to 24 4.30
	Wings Sheet II Sheet II Common. No. 10 to 14
Planes Ono Tool Co. dis 35 7/6 % cash Auburn dis 25 dis 10 % Auburn dis 25 dis 10 % Auburn dis 25 dis 10 % Butcher's dis 20 % to 5 Butcher's dis 10 % to 5 Butcher's dis 10 % to 5 Butcher's dis 60 % to 5 Butcher's dis 60 % to 5 Non-Adjustable dis 60 % to 5 Non-Adjustable dis 60 % to 5 Picks New list. Picks New list. Picks Stanley Boxwood dis 60 % to 5 Stanley tory dis 50 % to 5 % to	Wings Sheet I Common. No. to to 14
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Steel and Iron. dis 50 %; full case, que oxor 5 Try Squares, Staniey dis 45 % to 5 Disston's Try Squares oxor 5 Disston's Try Squares oxor 5 Disston's Try Squares oxor 6 dis 45 % 5 Scythes, Golden Clipper, Damasous Blade, Boxed and Sharpened. dis 25 disper No. 5, Paintod Red, Boxed and Sharpened. disper No. 6	Non-1 to 4
The squares stanler of the soft of the sof	Nos. 31 to 34
The to 100 140 200 250 300 80 arres. Steel and Iron dis \$0.5; full case, dis \$0.60 5 Try Squares, Stanley dis \$0.50 5 Try Squares, Stanley dis \$0.50 5 Disston's Try Squares dis \$0.50 5 Scythes, Golden Clipper, Dammasous Blade, Boxed and Sharpened the disper No. 10, Bronzed Blade, Boxed and Sharpened the disper No. 5, Painted Red, Boxed and Sharpened the disper No. 5, Painted Red, Boxed and Sharpened the disper No. 5, Painted Red, Boxed and Sharpened dis \$0.50 Disston's Circular dis \$0.50 Disston's Lightning Cross Cut, new Hel. dis \$0.50 Disston's Lightning Buck Saws, cross bar. dis \$0.50 Disston's Lightning Buck Saws, cross bar. dis \$0.50 Disston's distance dis \$0.50 Disston's Disston's Buck Saws, cross bar. dis \$0.50 Disston's D	Nos. 31 to 34
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	Coes' Genuine	To IC C
THE REAL PROPERTY.	## Peright or Ann'd, No. oto 18	Au
	PITTSBURGH.	Tra For
	Merchant Iron. TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 per cent. for each, if remitted within 10 days from date of invoice. 15 to 4 by 36 to 1 inch	Pis Slice Boi
	15 to 4 by 36 to 1 Inch.	Boi tl Cir a Sm Loc
	t to 176. 3.50 \$ t to 9-16. 2.70 2.5t to 256. 2.70 2.5t to 345. 3.50 3.5t to 4 3.50 3.5t to 32 3.50 3.5t to 32 3.50 3.5t to 34 3.5t to 35	Squ Mil Taj Ho
	Half Oval and Half Round.	1X3 1X3 1 A1 5(8 Sol
1 1000	% Inch, Nos. 13 and 14	For Hot Cor Bey Cru
	3½ to 6 by ½ and 5-16 inch. 2.7c 1½ to 3½ by ½ and 5-15 ii 2.2c 1½ to 3½ by ½ and 5-15 i 2.2c 1½ to 3½ by ½ and 5-16 i 2.2c 1½ to 3½ by ½ and 5-16 i 5-9c 1½ to 3½ by ½ and 5-16 i 5-9c 1½ to 6 by ½ to 3-15 i 3.2c	Tire Toe Pld Axi
S THE STREET	36 and 3a by 5 and 5-16 5-16 15 to 6 by 15 to 3-15 3-00 14 to 6 by 80s. 11 and 12 3-00 15 to 15 by 16 to 3-10 3-10 3-10 15 and 15-15 by 16 to 3-10 3-10 3-10 25 and 15-16 by 16s. 11 and 12 3-20 3-20 36 and 11-16 by 16 to 3-16 3-20 3-20 36 and 11-16 by 16s. 11 and 12 3-20 3-20 36 and 9-16 by 16s 11 and 12 3-20 3-20 36 and 9-16 by 16s 11 and 12 4-20 3-20 36 and 9-16 by 16s 11 and 12 4-20 3-20 36 and 9-16 by 16s 11 and 12 4-20 3-20 36 and 9-16 by 16s 11 and 12 4-20 3-20 36 and 16 by 10s 11 and 12 4-20 3-20 36 and 16 by 10s 11 and 12 4-20 3-20 36 and 16 by 10s 11 and 12 4-20 3-20 36 and 16 by 10s 11 and 12 4-20 3-20 36 and 16 by 10s 11 and 12 4-20 3-20 37 and 16 by 10s 11 and 12 4-20 3-20 38 and 16 by 10s	Roll This Roll Wing be in pro
		Fur Hot Gui Spir San Pipe Roll Spur Pull
	13-10, Nos. 15, 13 and 15, 3-90; 13-10, Nos. 15, 13-10, Nos. 15, 13-10, Nos. 15, 13-10, Nos. 15, 14 and 15, 4-20; 13-10, Nos. 15, 14 and 15, 4-30; 14, Nos. 15, 17 and 18 4-20; 15, Nos. 15, 17 and 18 4-20; 15, Nos. 16, Nos. 17 and 18 4-20; 15, Nos. 18 4-20; 15, Nos. 19 and 20. 4-20; 15, Nos. 21 4-20; 15, Nos. 22	"6 to 18 to 25 to 14 to
	25 Nos. 10, 17 and 18 3.7c 26 Nos. 10 and 20 3.5c 26 Nos. 10 and 20 3.5c 27 Nos. 10, 17 and 18 3.5c 28 Nos. 10, 17 and 18 3.5c 29 13-16, Nos. 19, 14 and 15 4.1c 21-16, Nos. 10, 17 and 18 3.9c 21-16, Nos. 10, 17 and 18 4.0c 21-16, No. 21 4.1c 21-16, Nos. 22 4.2c 21-16, Nos. 21 4.2c 21-16, Nos. 21 4.2c 21-16, Nos. 22 4.2c 21-16, Nos. 21 4.2c 21-16, Nos. 21 4.2c 21-16, Nos. 10, 14 and 15 4.2c 21-16, Nos. 10, 14 and 18 4.2c 21-16, Nos. 10, 17 and 18 4.2c	Strice 500 B P P P P P P P P P P P P P P P P P P
	56, No. 22	Fr Te from be a
	Tion	6 X 11 X 18 X 15 X 26 X
	Alesse per lb. extra will be charged for each gauge lighter than the lightest indicated. 1-top per lb. extra will be charged for cutting floops to specified lengths. Barrel Hoops. 14 to 2 in., cut to length. 5 to 11 lbs, per set of 6 loops. 2.5 c. 8 lbs. and less than 5 lbs. per set of 6 hoops. 3.5 c. Less than lbs. per set of 6 hoops. 3.5 c.	26 X 26 X 30 X 30 X 34 X 36 X
	Leas tala list. per set of 5 hoops. 3.8c Extras for Cutting for Length all Preceding Iron. All Iron, including Tire. .1.10c No. 9 and heavier. 3.3c Plow Slabs. 3.5c Wings. 3.5c	6 X 11 X 18 X 15 X 26 X 26 X 26 X 30 X
	Sheet From. Charcoal Juniata No. 16 to 14 Sommon Charcoal Juniata No. 16 to 17 5.50 5.00 6.50 No. 18 to 31 4.10 5.50 7.16 No. 22 to 24 4.30 5.30 7.30 No. 23 to 24 4.50 6.30 7.30 No. 23 to 24 4.50 6.30 7.30 No. 23 to 25 6.30 7.30 No. 25 to 25 6.30 7.30	30 X 34 X 36 X An glass inch inch
	All sheets No. 18 and lighter, over 30 inches wide, not less than 2.0c extra No. 18 inches wide, not less than 2.0c extra Laulity (8)	Du
	246, 3, 346 and 4 inch	W
	1% by % "	In Pric
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0 4	THE IRON AG	H
MANN	red to 6od. Nails, \$3.00	Ī
ANNANANA E	Best Quality Refined Cast Steel. Square, Flat, Octagon and Round. \$\frac{9}{6}\to 2\text{ inches}, inclusivo.	700
RESERVED PRESE	Machinery Sleel. Ordinary Sizes, % to 2 inch Round 7%c 6c 5-16 and 2% to 3 inches 8%c 7c 5/4 and 3% to 0 10%c 8c 7-32 inch 10%c 9c 3-16 10%c 9c 3-16 12%c 3t Square, Flat and Octagon, %c extra throughout the list. Cut to specified lengths, %c extra. Hammer Cast Sleel.	THE RESIDENCE OF
A MAN	Sheet Steel.—Crucible. Bessemer & Dessemer & Over Hearth	
**************************************	To resure 13c 1c 5/4c 1c. extra for each additional gauge. 1c. extra for each additional gauge. Cut to multiples or specified lengths, 1/4c. extra. Miscellaneous Cast Steel. Auger and Auger Bit. 8-4c Axle Steel for carriages and wagons. 8-4c Frog Foints and Plates. 10c Side Bars. 8c Pick Bars. 8c Pick Bars. 8c Pick Bars. 9c 6c 1c. 10c Pick and Mattock, beveled. 9c 6c Axle Steel Steel 8c Pick Bars. 8c Pick Bars. 9c 6c Pick and Cant Hook 9c Pick and Cant Hook 9c 9c Roller. 9c Roller. 9c Roller. 9c Roller. 9c Roller. 9c Roller. 9c Spindle, subject to Machinery classification. 8-5cc Spindle, subject to Machinery classification. 8-5cc	
ter	Com and oranite weage 90 Roller 7.566 Spindle, subject to Machinery classification 856 Trap Spring Steel 946 Forged Crank Fins and Lathe Spindles 1056 Fliston Mods, plain 856 Side Bars, plain 856 Side Bars, plain 1056 Side Bars, plain 1056 Crucible, Open Hearth or Bessemer.	
000000000000000000000000000000000000000	Boiler, Fire-Box and Flue Sheets, not less than 3-16 thick. Boiler, Fire-Box and Flue Sheets, not less than ½ thick. Circulars and semi-circulars, when ordered separately. Smoke Stack, to shape. Locomotive Tank Steel.	
000000	File Cast Steet. Square, Round, Half Round and Flat Bastard, 8— Inch and over	
000	Spiral and Taper, cut to lengths .8c TYre Cust Steel. .8c 1x34 and over .8c 1x3-65, 3gx3-16 and 3d .85pc 1 and 13-16x36 and 5-33, 3gx3-16 and 5-33 .90 36 and 9gx46 and 3-32 and 1 g .95pc Solid Safe Coast Steel .75ga	11
e e e e e e	Agricultural Implement Cust Steel. Fork and Rake, Crucible	
	Spring	
000000000000000000000000000000000000000	Termix_Four months; 3 por cent. discount for cash, Termix_Godys. Relis and Castings.	11001
00000000	Spur and Bevel Wheels, large	1
2000000	"6 to 7 in. diam., 7 to 20 in. iong	L
	Strictly Pure White Lead in Oil, in kegs, in lots of 500 B and over, or; less then 500 B, 946° in 25 and 50 B Tin Pails, 560° B over keg price; 1246 B Tin Pails, 100° B over keg price; 1246 B Tin Pails, 100° B over keg price; 100° C over 500 B, 846° C orange Mineral, senuine, in kegs, 100° in barrels, 9° C Red Lead, very brilliant, 100° C in barrels, 9° C Red Lead, very brilliant, 100° C in barrels, 9° C Red Lead, very brilliant, 100° C in barrels, 9° C Red Lead, 100° C in barrels, 9° C in barr	SSDT
	For Box of to Feet.—Discount token 5 on single strength, boken 5 on double. Single Strength.	4
	Size. A.A. A. B. C.	KW
2	6 X 8 60 10 X 15. 12.75 11.74 10.00 11.X 15 11.X 15 10.6 X 24 13.40 13.40 12.50 11.24 12.50 11.24 18 X 22 10 30 X 30. 17.38 14.77 14.00 12.35 14.70 14.90 12.5 X 26 10 24 X 30. 10.71 12.31 14.77 14.90 12.5 X 26 10 24 X 36. 21.0 18.5 15.75 15.75 12.5 X 56 10 30 X 44. 23.35 23.15 21.35 17.25 12.5 12.5 12.5 12.5 12.5 12.5 12.5 1	6
	34 x 58 to 34 x 60. 99.55 37.75 24.00 30 x 60 to 40 x 60. 33.25 30.00 27.75 An additional 10 per cent, will be charged for all glass more than 40 inches wide. All sizes above 52 to the control of the	

points.	id wi	thin re	7566 7566 7566 days
AA.	Α.	B.	C.
\$8.24	\$7.50	\$7.00	86.5
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֡	### (### ### ### ### ### ### ### ### ##	Heat 100 He 100	egs, ioc; in barreh: **Rec: **Points. **I fipald within ra **I for \$ on single stre ouble. **AA. A. B. **Ess. \$7.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.24 8.50 \$7.00 9.25 10.75 9.75 12.25 10.75 9.75 13.00 11.26 11.26 13.00 11.26 11.26 13.00 11.27 13.00 11.27 14.00 12.00 15.24 17.25 15.00 16.24 17.25 15.00 17.25 15.75 17.25 17.25 15.75 17.25 17.25 15.75 17.25 17.25 15.75 17.25 17.26 16.75 14.50 19.00 18.50 15.75 19.26 15.75 23.25 21.25 17.25 24.00 22.50 18.00

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And the well-known And the well-known And the well-known	The only Heaters that produce pure, healthful, moist, warmed air withouter, poration of water, as the heat-

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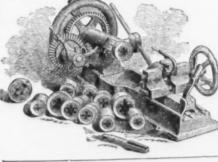
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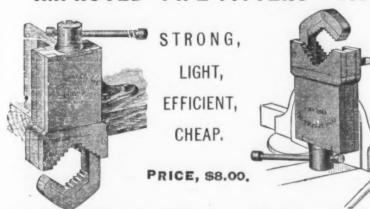
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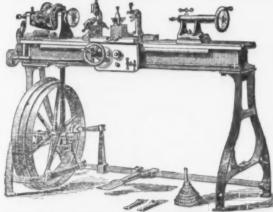
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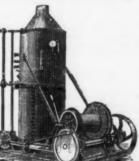
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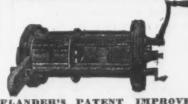
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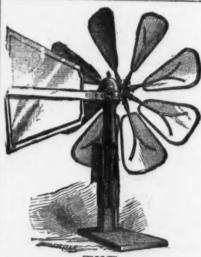
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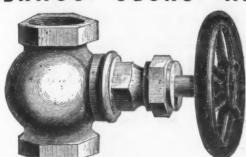
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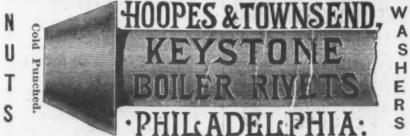
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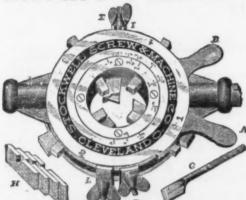
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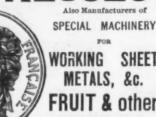


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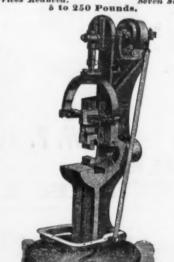
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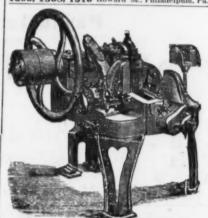
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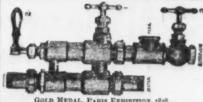
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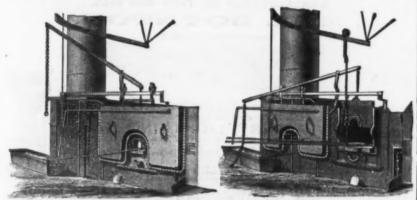
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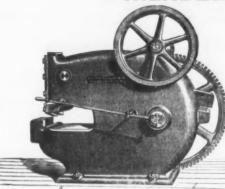
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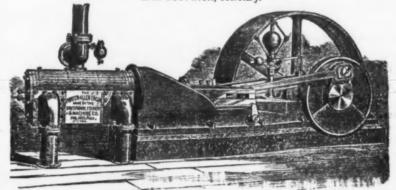
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